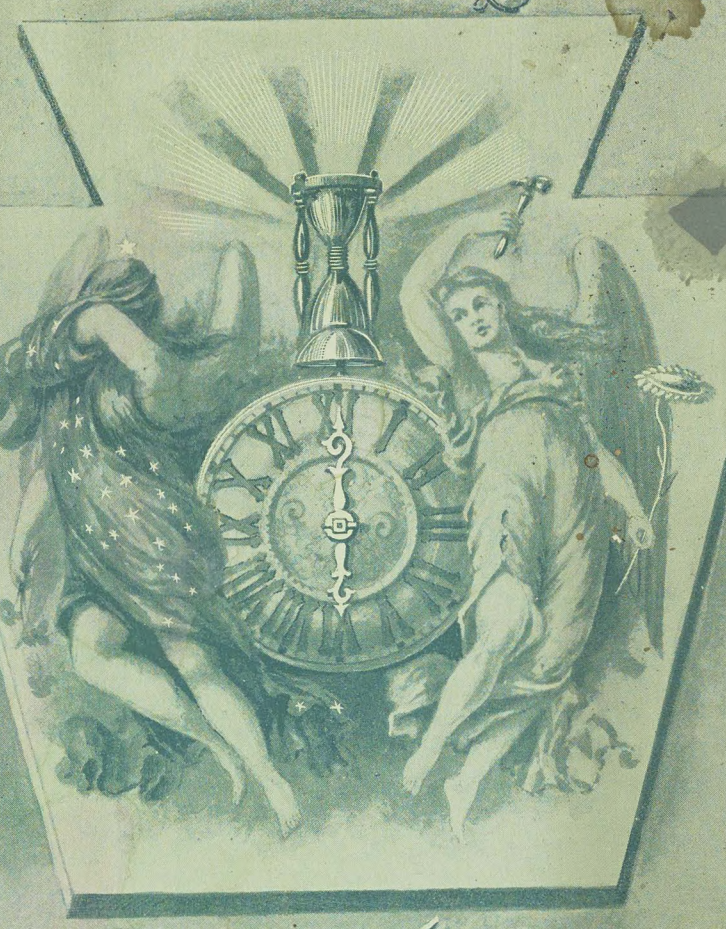


# The Keystone





THE ORGAN OF THE JEWELRY & OPTICAL TRADES

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Volume 19

Number 5

May, 1898

# IMPORTANT

## A Legal Decision of Especial Interest to the Watch Trade

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### UNITED STATES CIRCUIT COURT,

SOUTHERN DISTRICT OF NEW YORK.

---

**ELGIN NATIONAL WATCH COMPANY**

*vs.*

**LYMAN G. BLOOMINGDALE and JOSEPH B. BLOOMINGDALE.**

Motion granted enjoining the use of the word "Elgin," either alone or in connection with others, as a designation of watches sold by defendants not made by complainants. Injunction to run against marking, advertising, offering for sale or selling under such designation. Without prejudice to their right to insert in such advertisments or in any descriptions of the articles the statement that the *watches* were made in Elgin, if they were in fact made there: if, however, the *watch cases* only were made in Elgin the statement in advertisements, etc., must conform to the fact.

*April 16th, 1898.*

E. H. LACOMBE,
U. S. C. J.

A true copy,

JOHN A. SHIELDS,
Clerk.

F&B. TRADE MARK

# A Quarter of a Century

F&B TRADE MARK

partnership ends, and I am in shape to sell the best goods for very low prices, because twenty-five years of continued success has built up an elegant line of **LOCKETS, CHAINS, BRACELETS, CHAIN MOUNTS in Gold Filled and Sterling,** as well as an enormous line of **STERLING SILVER TOILET AND MANICURE GOODS,** also a **Plant second to none.**

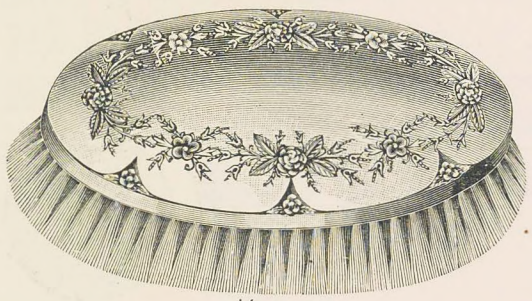
Although the dealer cares nothing for men, he does care for goods that **WILL SELL.** I propose to keep up the past reputation of the house, and have reason to believe that every dealer in this country prefers to sell goods that have a reputation behind them. Sterling with me means $\frac{925}{1000}$ fine, and my well-known trade-mark **F & B** is a guarantee that my output is properly made and finely finished. The rich, artistic die-work and new original patterns found in my great line are partly the cause of the rapid growth of my business.

The spasm for cheapness is fast disappearing, and the demand for goods made by reputable houses is increasing.

I patent all designs, insuring the dealer against ruinous competition by brainless imitators.

## JEFFERSON PATTERN

904. Large Mirror.
905. Medium Mirror.
906. Large Hair Brush.
907. Medium Hair Brush.
908. Large Cloth Brush.
909. Medium Cloth Brush.
910. Military Brush.
912. Velvet Brush.
914. Nail Brush.



½ SIZE

910. Military Hair Brush

916. Nail Polisher.
917. Cut Glass Paste Box.
918. Large File.
919. Large Corn Knife.
920. Large Cuticle Knife.
921. Large Shoe Horn.
922. Large Shoe Button Hook.
923. Large Tooth Brush.
888. Manicure Scissors.

**ALSO A FULL ASSORTMENT OF MEDIUM SIZE IN SAME PATTERN**

**1000 useful and ornamental articles in STERLING TOILET AND MANICURE GOODS. Sets of every kind and description made up in nice boxes.**

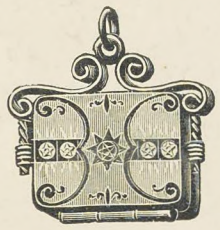
**Cut-Glass, Silver-Mounted, in PUFF, PASTE AND OINTMENT JARS, also SALTS AND PUNGENTS.**



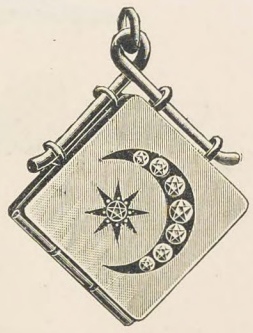
1482. Sterling
1103. Gold-Plate



1478



1450



1443



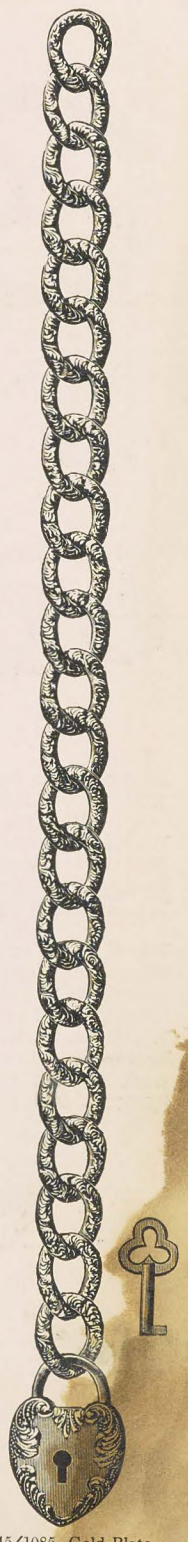
1452



1464



1479. Plain
1485. With Stone
Sterling



45/1085. Gold-Plate
237. Sterling
HEAVY WEIGHT

225. Gold-Plate
289. Sterling
LIGHT WEIGHT

**I have a very large line of BEAUTIFUL GOLD FRONT LOCKETS, with and without Stones. Every variety of CURB BRACELET, with Padlock, Sterling Silver and Gold Filled. Also a fine line of SILK VEST CHAINS with Beautiful Slides.**

**HAIR CHAIN MOUNTINGS, GOLD FRONT EARRINGS AND PINS.**

**Prices are away down.**

# THEODORE W. FOSTER

JEWELER AND SILVERSMITH

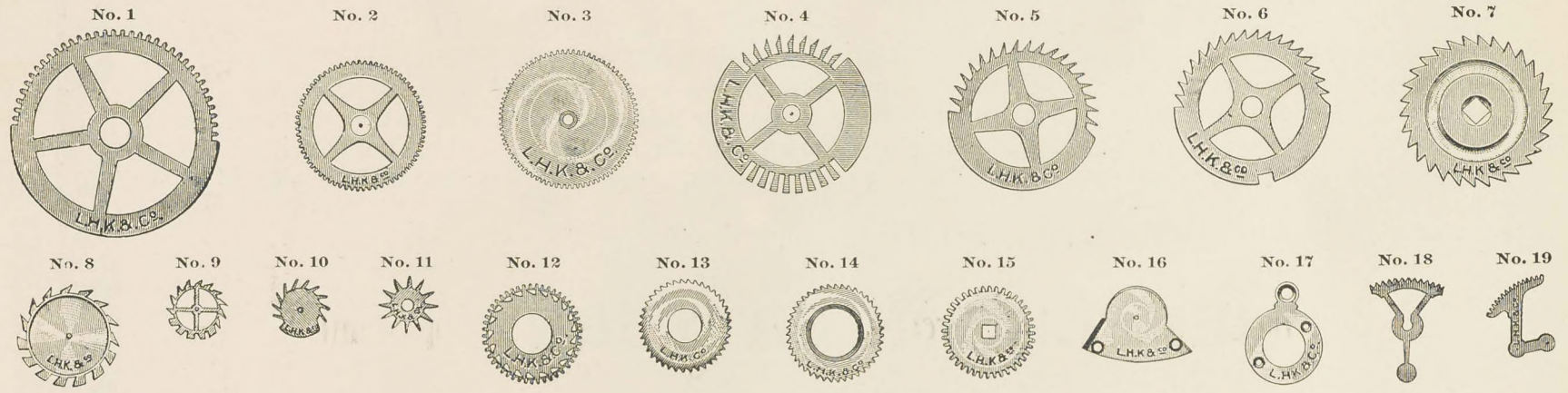
100 RICHMOND STREET — PROVIDENCE, R. I.

SUCCESSOR TO **FOSTER & BAILEY**

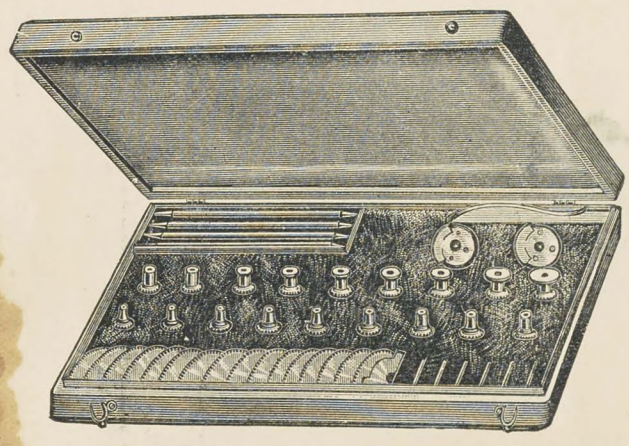
# Every Man His Own Wheel-Cutter

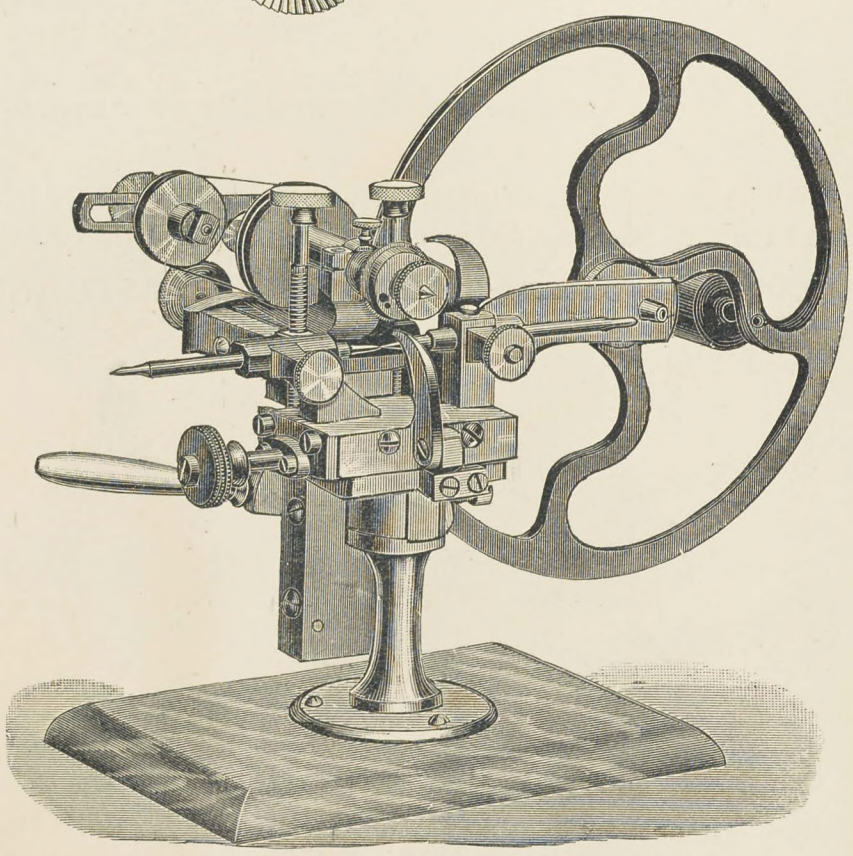
## Cutters for Watch Wheels

## Cutters for Clock Wheels




Above wheels Nos. 1, 2, 3 were cut with cutters style A.
Wheel No. 4, first cut at the bottom with style D; the finishing cut at the top with style H.
Wheel No. 5 was cut with style E.
Wheel No. 6 was cut with style H.
Ratchet No. 7 was cut with style J.
Wheels Nos. 8 and 9 were cut with style G at the bottom; at the top finished with style H.
Wheel No. 10 cut with style E.
Wheel No. 11 cut with style M.
Wheel No. 12 cut with style B on edge, and D on top.
Wheels Nos. 13 and 14 were cut with style C.
Wheel No. 15, with style B.
Bridges Nos. 16 and 17 milled out with cutter style D.
Rack No. 18 cut with style L.
Rack No. 19 cut with style B.





All of the cutters from A to Q we keep in stock, and they are as follows:

**Ratchet cutters for watch and clock work.**
**Escape-wheel cutters for clocks, also for chronometers and watches of all kinds.**
**Square-bottom cutters for watch and clock wheels.**
**Round-bottom cutters for stem-wind work and for pinions.**
**Wolf-tooth cutters, also for chronograph wheels, repeating work and star wheels.**

We also carry in stock a complete line of various models of

## Rounding-Up Tools.

Send for photographs and price-lists.

All of the above specimens of work were made on a "Webster-Whitcomb" Lathe, for which we are the agents.
Among the many lathes made, the "Webster-Whitcomb" Lathe stands away to the front.
A good workman equipped with this lathe and its attachments, including cutters, etc., is "a host within himself."
Send to us for prices of lathes, cutters, etc.

# L. H. KELLER & CO.

IMPORTERS, MANUFACTURERS AND DEALERS IN

**Fine Watch Materials, Tools, Files and Supplies.**

64 Nassau Street, NEW YORK.

We have just completed our Annual Stock-taking. In the progress of the work we laid aside, as we came to them, the odds and ends, the year-old patterns, the slightly shop-worn and whatever, for any reason, was not strictly up to date. These are "marked for slaughter." May is money-losing month with us—for these goods must go QUICKLY. Our reputation for carrying "the cleanest stock in the trade" is worth more to us than the profit in marketing these cullings at the regular price—so this is your opportunity. State what kind of goods you wish to see—Movements, or Rings, or Cases; and if Cases, whether Gold or Filled; and a selection will be sent you, if you are responsible or can give satisfactory references.—The Non-Retailing Company, Lancaster, Pa.




# Open-Face Split Seconds

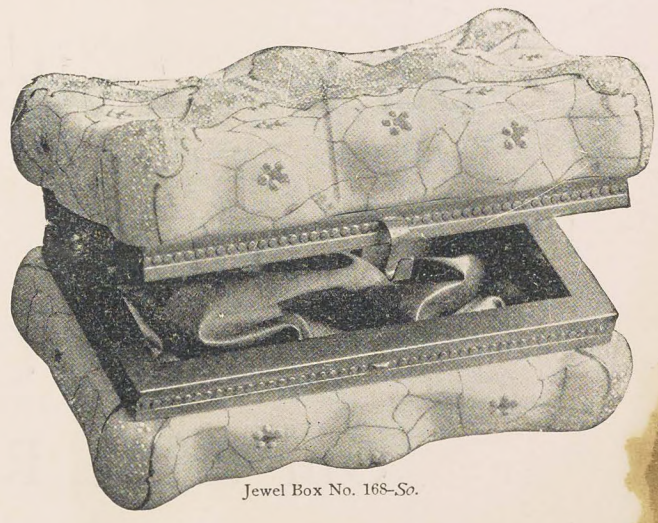
in Solid Gold 14-Karat Cases (heavy), $58
25-Year Filled Cases, - 36
20-Year " " - 32

Only in Jurgensen E. T. Cases. Less 6 per cent. for cash.

ORDER SAMPLES.

## Byron L. Strasburger & Co.

Importers of Watches, and Makers of Diamond Jewelry. 17 Maiden Lane, New York



Jewel Box No. 168–*So.*

# WAVE CREST

PATENTED OCTOBER 4, 1892.

EVERY ARTICLE OF THIS POPULAR WARE IN FUTURE TO BE STAMPED WITH TRADE-MARK.




The line doubled this year.
A most agreeable surprise in store for our customers.
Our salesmen to call on trade soon.
1898 Catalogue issued in a few weeks. If desiring one, kindly so advise us, as we shall have only a limited number.

## THE C. F. MONROE CO.

MANUFACTURERS OF Novelties for Wedding and Holiday Trade.

FACTORY, OFFICE AND SHOW ROOMS, Meriden, Conn.

NEW YORK SALESROOMS, 38 MURRAY STREET.




Our New Smelting and Refining Works
at
Fifty-ninth and Loomis Streets
Chicago
Our Office, Receiving and Sales
Department
will remain as usual at
63 and 65 Washington Street

# GOLDSMITH BROS.

**Geneva Optical Company,**
67 and 69 Washington St.,

Goldsmith Bros., City. Chicago, Ill., March 21, 1898.

Gentlemen: We have been so much pleased with the results of assays and smelting of sweepings and old gold sent to you, that we take this opportunity of stating that we have had the utmost satisfaction, and can recommend any interested parties to you.

Yours truly, Geneva Optical Co.,
Chicago.

---

**F. H. Noble & Co.**
**Manufacturers of Jewelers' Findings.**

Messrs. Goldsmith Bros., City. Chicago, March 22, 1898.

Gentlemen: During our business relations of the past eight years, we have sent you our sweeps, clips, etc., and have always received first-class treatment from you. Your returns have been prompt and satisfactory to us.

Very truly yours, F. H. Noble & Co.
per Kehl.

---

**Eisenstadt Manufacturing Co.**
St. Louis, March 21, 1898.

Messrs. Goldsmith Bros., 63 Washington Street, Chicago, Ill.

Gentlemen: Your returns on our sweeps, covering a period of years, have invariably proved satisfactory. Promptness has characterized every transaction with you.

Respectfully yours, Eisenstadt Mfg. Co.
per L. E. Gutfreund.

---

**Friton Bros.,**
**Engravers, Manufacturing Jewelers and Diamond Setters.**
613a Pine Street.

Messrs. Goldsmith Bros. St. Louis, March, 19, 1898.

Gentlemen: Your favor of 18th received, and returns for sweeps satisfactory. We take pleasure in saying that in the number of years we have had business connection with you, all your dealings have been characterized by promptness and expedition. This can also be said with reference to our sweeps, the returns on which have always been satisfactory and equal to expectation.

Respectfully, Friton Bros.

---

**Geo. K. Harrington & Co.,**
**Manufacturing Jewelers and Diamond Setters.**
Silversmiths' Building.

Goldsmith Bros., City. Chicago, March 21, 1898.

Gentlemen: It afford us great pleasure to add our testimony to the persevering manner in which you conduct your business. We have never dealt with a concern in which we have been so thoroughly pleased in all of our transactions. Assuring you that we shall never cease to praise your manly business methods, and wishing you long and continued success, we have the honor to remain,

Very truly yours, Geo. K. Harrington & Co.

N. B.—Your checks for our sweeps have always been very satisfactory.

---

WE can only convey our hearty thanks to our friends and customers who have testified so warmly in our behalf, and assure them and the trade at large that with our new plant, which has much more than doubled our former facilities, we are better than ever prepared to take care of their sweeps and smelting business. Our new works are fitted up with every modern facility for sweep-smelting, refining and assaying, and we solicit your consignments for everything in this line, guaranteeing you the most liberal and fair treatment. We report on sweeps in three days.

# GOLDSMITH BROS.

## Sweep Smelters, Refiners and Assayers
## 63 & 65 Washington Street
## Chicago

**Prompt and Accurate Assays of Ores.**

---

**Dorner & Company,**
**Manufacturers, Wholesale and Retail Jewelers.**

Messrs. Goldsmith Bros., Chicago, Ill. Duluth, Minn., March 19, 1898.

Gentlemen: We have always been well pleased with the prompt and satisfactory returns of all our sweep shipments, and always recommended you to those looking for honest returns.

Yours truly, Dorner & Co.

---

**R. E. Brackett, Jr.,**
**Manufacturing Jeweler and Engraver.**

Goldsmith Bros., Chicago. Lansing, Mich., March 19, 1898.

Gentlemen: Your check for my 1897 floor sweeps was entirely satisfactory, and I heartily commend your method and promptness in these matters.

Very respectfully, R. E. Brackett, Jr.

---

**S. Lazarus & Co.,**
**Manufacturers of Fine Jewelry.**

Messrs. Goldsmith Bros., City. Chicago, March 19, 1898.

Gentlemen: Enclosed please find receipt for check sent to us for our sweeps which we shipped to you only ten days ago; accept our thanks for prompt returns, and assure you meet with entire satisfaction.

Respectfully yours, S. Lazarus & Co.

---

**Ternendt & Co.,**
**Manufacturing Jewelers.**
57 Washington Street,

Messrs. Goldsmith Bros. Chicago, March 21, 1898.

Gentlemen: You have been refining my sweeps for years, and are doing it to-day, which you would not be doing if your work was not satisfactory.

Very truly yours, Ternendt & Co.

---

**Planchamp & Becker Co.,**
**Case Repairers.**
63 Washington Street.

Messrs. Goldsmith Bros., City. Chicago, March 22, 1898.

Gentlemen: Have purchased my pure gold from you, and also sold you sweeps and washings for a number of years, with the most pleasing and satisfactory results. Can heartily recomend your straightforward business methods and prompt manner of making returns.

Very truly, Planchamp & Becker Co.

---

**M. Newman,**
**Ring Manufacturer.**

Messrs. Goldsmith Bros., City. Chicago, March 22, 1898.

Gentlemen: have purchased over 500,000 dwts. of gold from you the past fifteen years, and during that time you have had all my sweeps, the returns being always prompt and satisfactory.

Very truly yours, M. Mewman.




# V.T.F.

## Watch Glasses

are used by more watchmakers than all others.

---

are used by more casemakers than all others.

---

are made in larger quantities than all others.

---

cost no more and are better than all others.

---

**for sale by all leading Jobbers.**

---

means everything that is first quality in a watch glass. Without **V. T. F.** on each and every label you are in danger of receiving inferior quality. Can you afford to?

---

The success of the **V. T. F.** has induced others to copy the label, but not the quality. There is only one **Beaded Border Label with V.T.F.**, and that stands alone as the *perfect* watch glass.

***Manufacturers of Beveled-Edged Clock Glasses, all manner of Round Beveled-Edged Glasses, as well as Lenses for Bicycle and other kinds of Lamps. For information, address J. W. Riglander, 35 Maiden Lane, New York.***

# Small Material

is not the least of the items that comprise our stock. Our object in this issue is to acquaint our patrons with the fact that our prices are ***never*** higher than those of reliable competitors, and in many cases less.

**Our Special Staff and Jewel Price-List** contains a full list of all makes of Staffs and Jewels, with prices, carefully compiled. Send us your address for a copy, and it will be sent free of charge.

## Price of Balance Staffs.

| | E. & J. S. Quality. Per dozen. | Eagle Brand. Per dozen. |
|---|---|---|
| Waltham 18 size, | $1.00 | $ .75 |
| " 16 " | 1.00 | |
| " 6 " | 1.00 | .75 |
| " 0 " | 1.00 | .75 |
| Elgin 18 " | 1.00 | .75 |
| " 16 " | 1.00 | .75 |
| " 6 " | 1.00 | .75 |
| " 0 " | 1.00 | .75 |
| Illinois 18 " | 1.00 | .75 |
| " 6 " | 1.00 | .75 |
| Hampden 18 " | 1.00 | .75 |
| " 6 " | 1.00 | |
| Columbus 18 " | 1.00 | .75 |
| Rockford 18 " | 1.00 | |

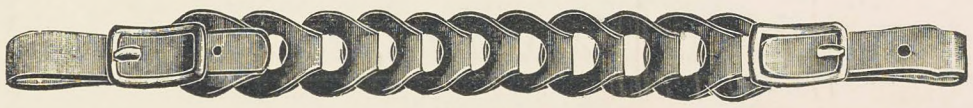
## Prices of Cock and Foot Jewels.

| | E. & J. S. Quality. Per dozen. | Eagle Brand. Per dozen. |
|---|---|---|
| Waltham 18 size, | $1.50 | $ .75 |
| " 16 " | 1.50 | |
| " 6 " | 1.50 | .75 |
| " 0 " | 1.50 | .75 |
| Elgin 18 " | 1.50 | .75 |
| " 16 " | 1.50 | .75 |
| " 6 " | 1.50 | .75 |
| " 0 " | 1.50 | .75 |
| Illinois 18 " | 1.50 | .75 |
| " 16 " | 1.50 | |
| " 6 " | 1.50 | .75 |
| Hampden 18 " | 1.50 | .75 |
| " 6 " | 1.50 | |
| Columbus 18 " | 1.50 | .75 |

ALL PRICES SUBJECT TO CASH DISCOUNT OF 6 PER CENT.

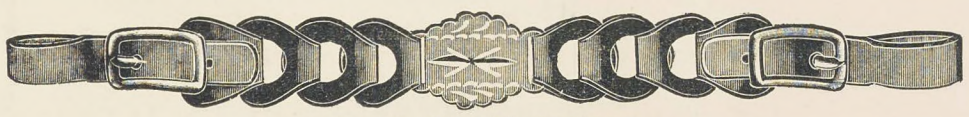
**Genuine Factory Staffs and Jewels** comprise so large a list of different styles that it is impossible to quote prices satisfactorily in a limited space. We furnish all genuine material at factory prices, and always have in stock the grades and sizes used in the various American movements.

**E. & J. S. Staffs and Jewels** are American-made, accurately gauged, and give very excellent satisfaction. Our Eagle Brand quality compares favorably with such material sold under other names, in many cases at much higher prices.



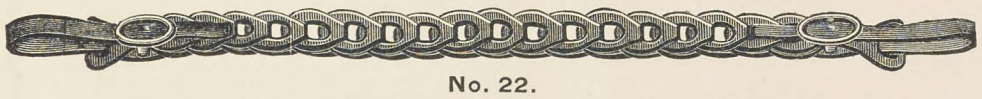
No. 15.

Per dozen, 25 cts.
" " by mail, 33 " Per gross, $2.88.



No. 17. METAL CENTER.

Per dozen, 40 cts.
" " by mail, 48 " Per gross, $4.50.



No. 22.

Per dozen, 50 cts. Per dozen, by mail, 58 cts.

## Novelty Leather Chains.

| | Per doz. | Per doz. by mail. |
|---|---|---|
| No. 15½. White Leather, style No. 15, | $ .45 | $ .53 |
| " 18. Leather Fobs, | .75 | .85 |
| " 18½. " Fobs, white, | 1.05 | 1.15 |
| " 16. " Key Chains, | .65 | .75 |
| Leather Hat Bands, | 1.25 | 1.35 |

Our leather chains are not a high priced article; but if your customer wants one and insists on having it, why let your competitor sell him?

A sample order will convince any dealer that they sell readily and pay a profit for the selling.

**Clock Springs** have been made in almost an endless variety of sizes for the different makes of American clocks, making it a difficult matter to supply the many styles called for. We have a very large assortment of these springs in stock, and can supply the bulk of odd sizes that are called for. Send piece of spring for sample when you order, and don't fail to give length of old spring.

***OUR BOOK OF TOOLS, MATERIAL AND OPTICAL GOODS*** sent free of charge on receipt of business card or by mentioning THE KEYSTONE.

# E. & J. SWIGART,

## CINCINNATI, OHIO.

# ★H&H

Our Registered Trade-Mark is a Guarantee.

STAMPED ON SWIVEL AND LINK OF EVERY CHAIN.

**Hamilton & Hamilton, Jr.**
**Providence, R. I.**




"Busiest Jewelry Plant in 45 States"

## *An Unsolicited Testimonial!*

A jobber writes us:

DEAR SIRS:—It may interest you to know that the result of a recent test by one of our best customers of your **King Filled Stock Chains,** against those of another prominent manufacturer, proves beyond doubt that your Chains are so greatly superior that there is practically no comparison. Accept our congratulations.

## OUR CHAINS

have always been in the front rank, and still hold their place.

They are the standard of quality.

In style, quality and finish we challenge comparison at the same price.

## OUR GOODS SELL.

Do not need to be put out on consignment.
Send for quotations through your jobber.

**MAIN OFFICE, Providence, R. I.**

**BRANCH OFFICES: New York, Chicago, San Francisco, London.**

ADDRESS ALL COMMUNICATIONS TO MAIN OFFICE.

---



# I Can and Will Make Your Auction Sale a Success and a Big-Paying Investment

I am booking sales for the spring, and if you have not already written me, do so at once. It costs you nothing to get my views on the subject, and if it pays the largest establishments in the country, why will it not pay you? Read what others say, and then write them and ask them if the auction sale they had did not pay them 100 to 120 on the dollar; if it did not clean up old stock; if it did not put them on a cash basis; and, lastly, if they do not consider it the most profitable venture they ever went into, when in the hands of a skillful salesman such as F. P. D'ARCY claims to be.

DENVER, COLORADO, January, 1898.

After a six weeks' sale in my store by MR. D'ARCY, I take pleasure in stating that he has sold a total of $19,000, and has averaged a good profit on all sales over and above all store and running expenses, commission, etc. I am more than pleased with my experience in running an auction sale, and can heartily recommend that method of getting rid of old stock and shop-worn goods. In selecting an auctioneer, get only the best, and I take pleasure in recommending MR. D'ARCY as a most refined gentleman, a flowery orator, and a man who can get the confidence of the people and can realize more money out of old goods than any one I have ever had the pleasure of meeting. I have heard about all the auctioneers of note in the country, and I consider MR. D'ARCY the peer of all.

G. W. SHERMAN, 16th Street, Denver, Colorado.

## F. P. D'ARCY,

### 3547 Prairie Avenue, CHICAGO, ILL.

**WRITE FOR PARTICULARS.**

**TO THE TRADE:**

MR. D'ARCY made a remarkably successful sale for me and I cheerfully recommend him. H. G. HUFFMAN, Clyde, Ohio.

I have the pleasure of stating, in my estimation, MR. D'ARCY is the most remarkable man in his line I ever saw. He averaged 110 in a sale of $5,500 in the dullest month of the year.

SHEFF BROS., Wheeling, W. Va.

MR. D'ARCY took charge of my store after two auctioneers made a flat failure. He not only made a big success of the sale, but made big profits, and I only regretted that I had not succeeded in procuring his services at the start, as I would have been a thousand dollars better off if I had. I have nothing but the best of praise of his style and method, and will be pleased to answer all letters addressed to me for further information.

DONELSON JEWELRY CO., Des Moines, Iowa.

Write to me if you wish to know what I think of F. P. D'ARCY as a jewelers' auctioneer; I have heard them all, and he is, in my opinion, the cleverest man that ever stood behind a case.

F. LOEHMEYER, Newport, Ky., and Cincinnati, Ohio.
Secretary Ohio Jewelers' Association.

If you want a man who understands handling a refined and cultured audience, who will please everybody, who will make your sale a success and get you more than 100 cents on the dollar, get F. P. D'ARCY. He made a most successful sale for me, and I know of no man who is his equal in his chosen profession.

J. B. SETTLE, Bowling Green, Ky.

I never thought any man could accomplish what MR. D'ARCY did for me; his letters were rather strong, and I was doubtful He not only did all that he claimed, but far more. He got remarkable prices—in fact, far better than retail prices in many instances. I would not ask for a better thing than an auction sale if I could procure the services of MR. D'ARCY. He is a remarkable worker, a man of ability and judgment, and a reader of human nature such as I have never met. I can cheerfully recommend him and will be pleased to answer all communications in regard to him.

W. B. PIPER, Ashland, Ill.

MR. D'ARCY made an auction sale for us of C. S. Hayes' wholesale and retail stock, and we take pleasure in saying he made a clean sweep of the entire stock in fourteen days during the coldest weather we had. We have no hesitancy in saying that he made a most remarkable sale, and there was profit enough above all expenses of commission, etc., to pay 100 cents on the dollar.

Very respectfully, POWERS & HAYES,
Attorneys, Assignees of C. S. Hayes.

MR. D'ARCY has just closed a $7,000 sale for us, and, although the weather was decidedly warm, he held his audience spell-bound for hours, and the prices he got at auction were a revelation to us. We have had the pleasure of hearing every auctioneer of note in the United States, and unhesitatingly pronounce MR. D'ARCY the cleverest man in his business that ever faced an audience. All letters answered. WM. RAGLAND & SON, Waco, Texas.

I take pleasure in stating that my sale was a complete success, made possible by the masterly effort of F. P. D'ARCY, the Jewelers' Auctioneer. I can cheerfully recommend him, and feel sure he will not only make you money on a sale, but will leave your business better after the sale than before.

R. R. ROGERS, Manning, Iowa.

It affords us unusual pleasure to recommend the services of MR. F. P. D'ARCY, the Jewelers' Auctioneer. He sold for us forty-eight days. We took in $32,000, with seven other auction sales of various kinds running at the same time. Our trade was confined to the higher class of goods, and we averaged 100 cents on the dollar after all expenses were deducted. We unhesitatingly pronounce MR. D'ARCY the most successful man that has ever talked to an audience in our city, and we take pleasure in recommending him to anyone wishing an auctioneer where high-grade goods are carried.

Very respectfully,
SMYTH & ASHE, Rochester, N. Y.




Use the

# "Imperial" Mainsprings



They are the best, the most reliable, are COILED AND TAGGED, put up in the most convenient manner, and are "Guaranteed for One Year."

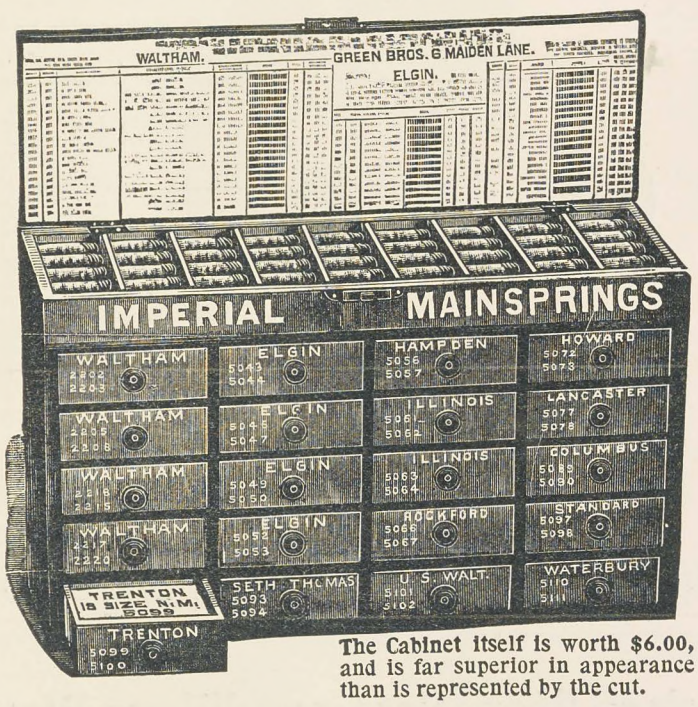
Beware of Imitation !!!




Price, $12.00 per Gross. 1.00 per Doz.

Cabinet and a full set of Screw-Top Bottles sent GRATIS.

"It is worth securing."



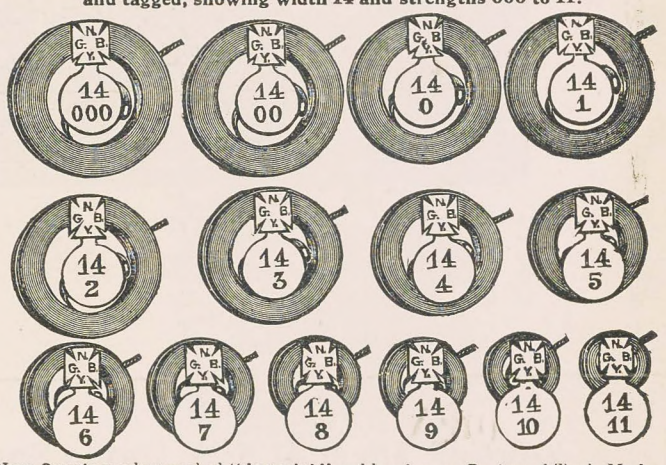

The Cabinet itself is worth $6.00, and is far superior in appearance than is represented by the cut.

To such of our patrons who have not yet used them, we will state that the inner surface is **crocus finished, the edges carefully rounded,** in this latter respect very much superior to other springs, which usually have less carefully finished or sharp cutting edges. The two inner coils are made a size narrower and weaker than outer ones, rendering them less liable to rub on the cover of the barrel, and allowing them to take a shorter turn on the arbor. We furnish them either "**assorted**" or in "**separate**" strengths. A small brass tag is attached to each spring as shown in cut, upon which is plainly stamped the exact **name, number, width** and **strength,** thus saving much time and trouble when selecting a spring or when about to replenish stock. The strengths and widths correspond to the genuine Dennison's mainspring gauge. The word "**Imperial**" is placed on the end of each spring. These springs we can safely recommend as superior to any other make, and the constantly increasing sale and the many testimonials we have received are the best testimony we can have of the satisfaction they afford to the many who are using them.

## SPECIAL NOTICE.

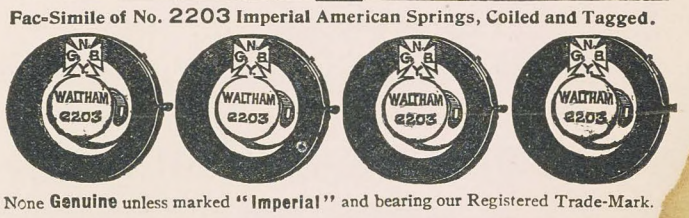
With a first order of one gross of the "**Imperial" American or Swiss Mainsprings,** we send **gratis our Improved handsome polished Solid Black Walnut, Oak or Cherry Mainspring Cabinet,** as shown in cut. It is well made, cabinet finished and dovetailed throughout, and the cover closes with a patent snap lock, nickel-plated. It is the only cabinet made that will properly systematize and keep in thorough order the many American and Swiss mainsprings necessary at the present time, and will be greatly appreciated by all watchmakers. Besides being very useful, it makes a very handsome appearance. It has twenty drawers, with fancy knobs, brass trimmed, and the top is arranged in grooves for thirty-six screw-top glass bottles for watch and jobbing materials. **It will hold 6 GROSS Imperial American or Swiss Springs.** We also include two sets of perforated gummed labels, with name, number and size of the springs, so the drawers can be numbered as desired. These numbers correspond to a directory of all American springs which is printed on the inside cover, showing the **correct style, width and strength by Dennison's Standard Mainspring Gauge,** and the proper **numbers** and **names** for ordering.

**Fac-simile of an assortment of "IMPERIAL" Swiss Mainsprings, coiled and tagged, showing width 14 and strengths 000 to 11.**




None **Genuine** unless marked "**Imperial**" and bearing our Registered Trade-Mark. as shown in cut.

**Fac-Simile of No. 2203 Imperial American Springs, Coiled and Tagged.**




None **Genuine** unless marked "**Imperial**" and bearing our Registered Trade-Mark.

# GREEN BROS. 6 Maiden Lane, NEW YORK.

Importers, Manufacturers and Jobbers of { Fine Grade Watch Materials, Tools and Jewelers' General Supplies.

Our work is DURABLE. It will not fade nor peel off.

## Miniature Portraits IN WATCHES, BROOCHES, LOCKETS.

REDUCED PRICE, To the Trade Only, $1.00 for Single Head or Group.

PAINTED MINIATURES ON IVORY.
Tinted, $7.50. Finely Stippled, $15.00.

*Send for Circular.*

THE GOLDSTEIN ENGRAVING CO.,
45 Maiden Lane, NEW YORK.
We do SOUVENIR SPOON Engraving and Etching.



*When writing to advertisers, kindly mention The Keystone.*

WILL. CLOW
FIVE YEARS HEAD WATCHMAKER FOR C. H. KNIGHTS & CO.

FRED. CLOW,
FORMERLY ENGRAVER WITH C. D. PEACOCK.

## CLOW BROS.,

WATCHMAKERS AND ENGRAVERS TO THE TRADE,
Room 813, Columbus Memorial Building, CHICAGO.

We give expert attention to all orders in our line, and rely upon holding our customers by giving their favors careful and prompt attention. We solicit your repairs and engraving. With your first order we will send you free of cost a very sensitive Compass for detecting magnetism in watches.

*Rose Diamonds*
*Opals*
*Pearls*
*Turquoise*
*Garnets*
*Doublets*

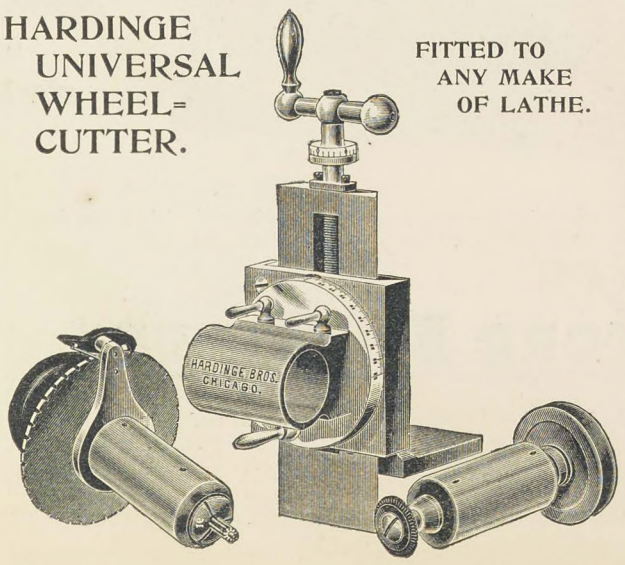
## MAX R. GREEN & CO.

Importers of
Precious and Imitation Stones
31 Masonic Temple, CHICAGO
Our specialty is jobbing stones. Lapidary work given prompt attention. **Your orders solicited.**

*Whitestones*
*Moonstones*
*Onyx*
*Cameos*
*Etc.*
*Etc.*

## HARDINGE UNIVERSAL WHEEL-CUTTER.

FITTED TO ANY MAKE OF LATHE.



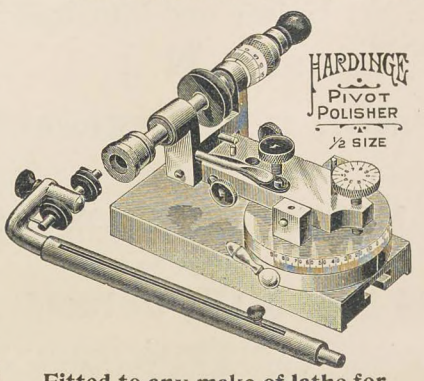

If interested, send for full illustrated circular with price of Cutters and Fixtures, also our complete catalogue. Price of Wheel Cutter, with either spindle, **$25.00.** Both spindles, **$30.00.**

## Hardinge Bros., 1036 Lincoln Ave., CHICAGO.

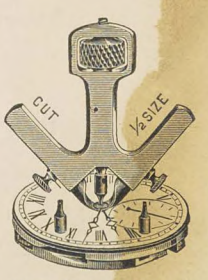
MANUFACTURERS OF




**Dale Chucks for any lathe. Wire or Wheel Guaranteed.**
**$1.00 each.**




**Fitted to any make of lathe for $25.00.**




**Hardinge Patent Hand and Roller Remover.**
**Price, $2.50.**

*Write for New Complete Catalogue.*

# War!

**Military Belts and Buckles are very popular, and in touch with the times.**

Look at this one and at the price.




| | | | |
|---|---|---|---|
| No. 3610. | Buckle, | $2.00 list | per doz. |
| No. 3612. | " with Velvet Belt, complete, | 4.50 " | " |
| No. 3612. | " with Leather Belt, complete, | 4.50 " | " |
| No. 3612. | " with Silver Wreath, with Belt complete, | 7.50 " | " |
| No. 3671. | Sterling Buckle, | 30.00 " | " |
| No. 3671. | " " Velvet Belt, complete, | 36.00 " | " |

These Buckles are well made and finished, and at popular prices to suit all demands.

You must have them in stock to be up to date. Also made in oxidized.

## *Sterling Silver U. S. S. Maine Spoons.*

Gilt or oxidized bowls.

| | | |
|---|---|---|
| No. 2049. | Coffee Spoon, | $6.00 per dozen list. |
| No. 1379. | " " | 7.50 " " |

Send for samples. If you are not known to us, send cash with the order.

## CODDING & HEILBORN CO.

*Jewelers and Silversmiths,*

**North Attleboro, Mass.**

NEW YORK OFFICE—C. A. Vanderbilt, 178 Broadway.
SAN FRANCISCO OFFICE—Stanley Glidden, 120 Sutter Street.
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## L. Lelong & Brother

**Gold and Silver Refiners, Assayers and**

## SWEEP SMELTERS

***BULLION SOLICITED*** ***SMELTING FOR THE TRADE***

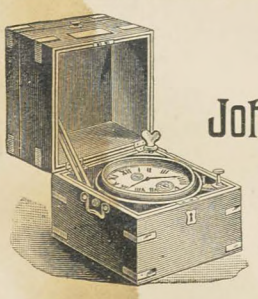
Prompt attention given to Old Gold and Silver forwarded to us by mail or express.

Southwest Corner Halsey and Marshall Streets

Newark, N. J.

***SWEEPINGS OUR SPECIALTY***

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## MARINE CHRONOMETERS,

MANUFACTURED BY

## John Bliss & Co., 128 Front St., New York.

We have on hand a number of Chronometers, by various good makers, not new, which have been in service for purposes of navigation, and are excellent instruments. They have been put in perfect repair, and will give satisfactory results as to performance. We will sell these Chronometers at low prices, either for cash, or on accommodating terms to suit special cases, or will hire them at moderate rates and allow the hire to apply on purchase.

SEND FOR CIRCULAR GIVING PRICES AND TERMS.

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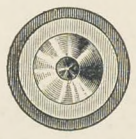
# THE ROAD TO SUCCESS

**Use our JEWELS, STAFFS and MAINSPRINGS.** Order other Watch Material you may need from us, and you will always save money. We allow you 10 per cent. off for cash, from factory prices.

**OUR SPECIALTY** is Mounted Jewels, Balance Staffs and Mainsprings, and our prices are the lowest offered by any house (quality considered. They are perfect goods, guaranteed to fit, and finely polished. Our trade on the goods has increased 100 per cent. since January 1st. Note our net prices on the following goods :



| | | | |
|---|---|---|---|
| Elgin | 18 size | Balance Staffs | $1.25 doz. |
| " | 16 " | " | 1.25 " |
| " | 6 " | " | 1.25 " |
| Waltham | 18 " | " | 1.25 " |
| " | 16 " | " | 1.25 " |
| " | 6 " | " | 1.25 " |
| Hampden | 18 " | " | 1.25 " |
| " | 16 " | " | 1.25 " |
| " | 6 " | " | 1.25 " |
| Illinois | 18 " | " | 1.25 " |
| " | 16 " | " | 1.25 " |
| " | 6 " | " | 1.25 " |
| Columbus | 18 " | " | 1.25 " |
| Rockford | 18 " | " | 1.25 " |
| Trenton | 18 " | " | 1.25 " |
| N. Y. Standard | 18 " | " | 1.25 " |



| | | | |
|---|---|---|---|
| Elgin | 18 size | C. & F. Jewels | $1.25 doz. |
| " | 16 " | " " | 1.25 " |
| " | 6 " | " " | 1.25 " |
| Waltham | 18 " | " " | 1.25 " |
| " | 16 " | " " | 1.25 " |
| " | 6 " | " " | 1.25 " |
| Hampden | 18 " | " " | 1.25 " |
| " | 16 " | " " | 1.25 " |
| " | 6 " | " " | 1.25 " |
| Illinois | 18 size | C. & F. Jewels | 1.25 doz. |
| " | 16 " | " " | 1.25 " |
| " | 6 " | " " | 1.25 " |
| Columbus | 18 " | " " | 1.25 " |
| Rockford | 18 " | " " | 1.25 " |
| Trenton | 18 " | " " | 1.25 " |
| N. Y. Standard | 18 " | " " | 1.25 " |

### RED CROSS MAINSPRINGS

made for all sizes and makes of American Movements

**$1.00 per dozen, $11.00 per gross**

We replace broken ones free of charge

**We are closing out the following goods at reduced prices :**

| | |
|---|---|
| Mascot Pivot-Drills | $0.40 doz. |
| Roller Jewels for all makes of movements | .25 doz. |
| Genuine American Case Screws | .25 doz. |
| Silverine Watch Bows, 3 oz. | .25 doz. |
| Rolled-Plate Wire, good quality, ¼ oz. | .25 |
| " Jump Rings, assorted | .25 gro. |
| " Button Backs | .60 doz. |
| " Spirrels | .35 doz. |
| Waltham Hands, all sizes, dozen pairs | .20 |
| American Pendant Screws | .50 gro. |
| Swiss Roller Jewels .25, .50 and | .75 gro. |
| " Cap " .25, .50 and | .75 gro. |
| Imitation American Roller Jewels | .75 gro. |
| English Pivot Broaches | .15 doz. |
| Spectacle Temple Washers | .10 gro. |
| Movement Washers, per 3 dozen | .10 |
| Dial Washers, "Tripod" | .10 box |
| 12 K. Gold Filled Watch Bows, 18 size | 2.50 doz. |
| 12 K. " " 16 " | 2.00 doz. |
| 12 K. " " 6 " | 1.50 doz. |
| Pivot Caps, per box | .75 |
| Rolled-Plate Dumb-Bell Button Backs, round or oval | .50 doz. |

Our terms are cash with order, or a deposit and goods will be sent C. O. D., privilege of examination. Money will be refunded for all goods not satisfactory, if returned within ten days from date of bill, in good condition. We will accept no order except on above terms.

## TIDD & CO., COLUMBIANA, OHIO

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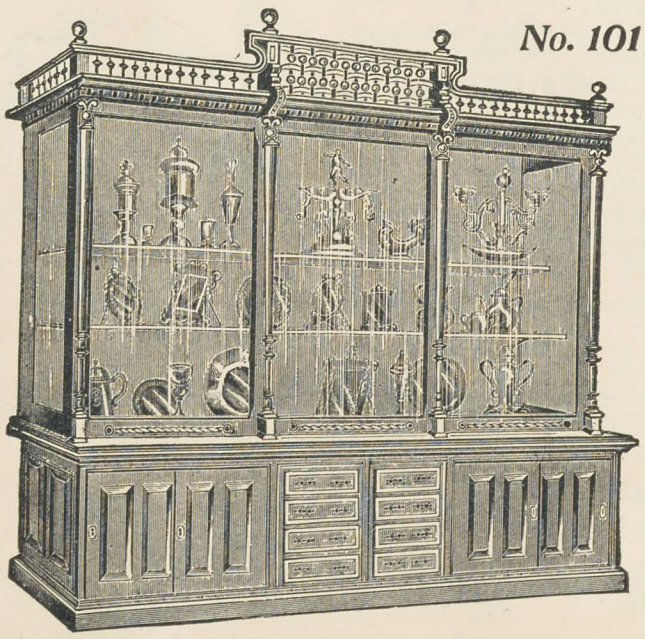
# American Show Case and Mirror Works

L. G. HANSEN, PROPRIETOR.

## 27 Lake St., Chicago

BRANCH, SEATTLE, WASH

*No. 101*



**Our Cases are the finest made and always carried in stock**

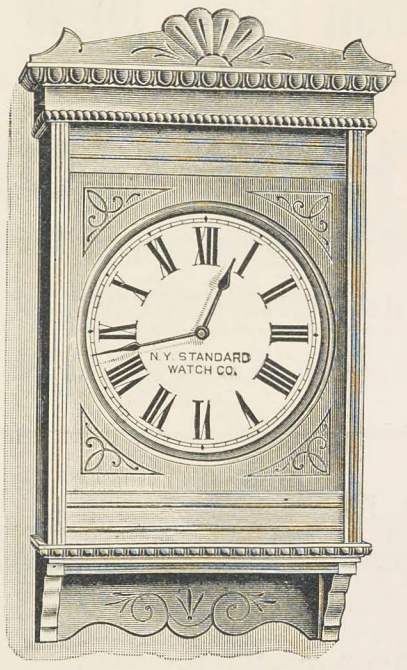
Wall Cases are made of Walnut, Cherry or Oak—in stock eight to ten feet, or made to order any length and height desired.

We make a specialty of

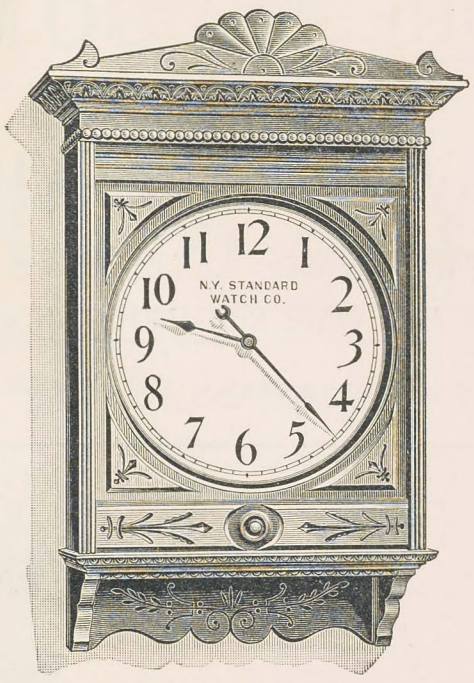
## STORE FURNITURE

of best workmanship for the jewelry, silverware and kindred trades at reasonable figures
Complete Outfits made on shortest notice. Original Designs furnished upon application.

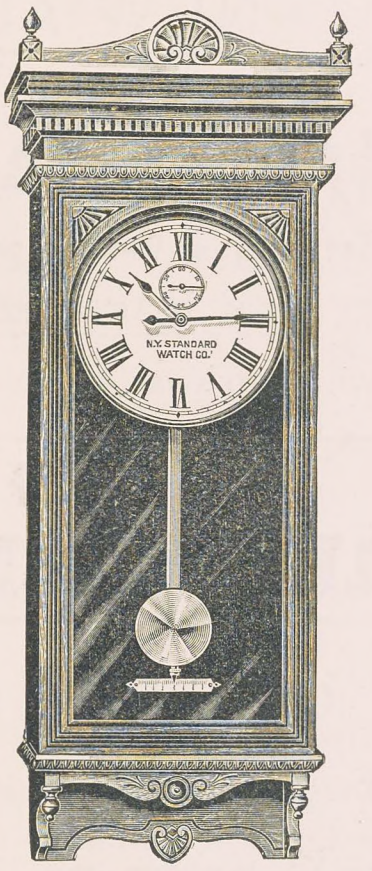
**Send for our New Catalogue.** Mention The Keystone. **Call and see us when in Chicago.**



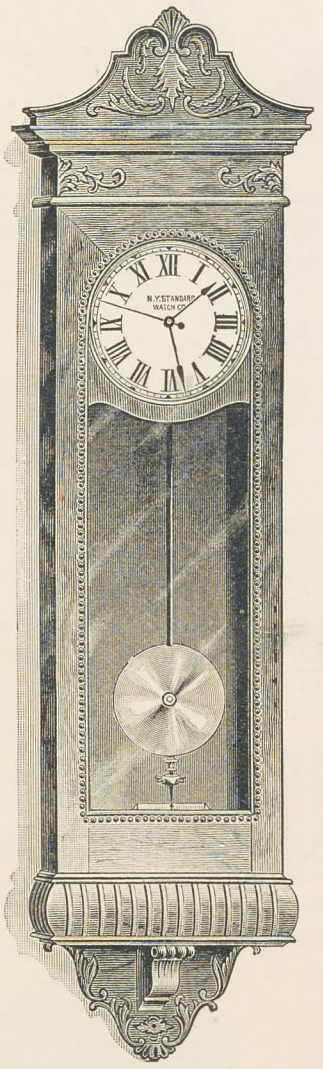

OFFICE No. 25
$15.00




LOBBY No. 20
$22.50




REGULATOR No. 10
$25.00




JEWELERS' REGULATOR No. 1
SWEEP-SECOND
$50.00

# Mr. Jeweler, we are making Electric Clocks for you and your customers in keeping with the wonderful electrical developments of the times.

These Electric Clocks are as great a step forward over old methods of winding as the electric street car of to-day is in advance of the horse car of ten years ago.

Be alert to interest your customers with the latest and best in your line. The people are always ready to buy that which will save them time and trouble and give better results.

Write to your jobber or to us, and order one of these Electric Clocks and see its great advantages. Your money will be paid back if it does not prove satisfactory.

## NEW YORK STANDARD WATCH CO.

11 JOHN STREET, NEW YORK

352

# NOTICE—REMOVAL

NEW ADDRESS

OFFICE AND FACTORY

**30 Maiden Lane, NEW YORK**

ENTIRE UPPER PART OF BUILDING

# INGOMAR GOLDSMITH & CO.

**Importers and Cutters of Diamonds and Precious Stones** **Makers of Fine Diamond Mountings and Diamond Jewelry**

14 K. TIFFANY, BELCHER AND WIRE RING MOUNTINGS AT 85 CENTS PER DWT.

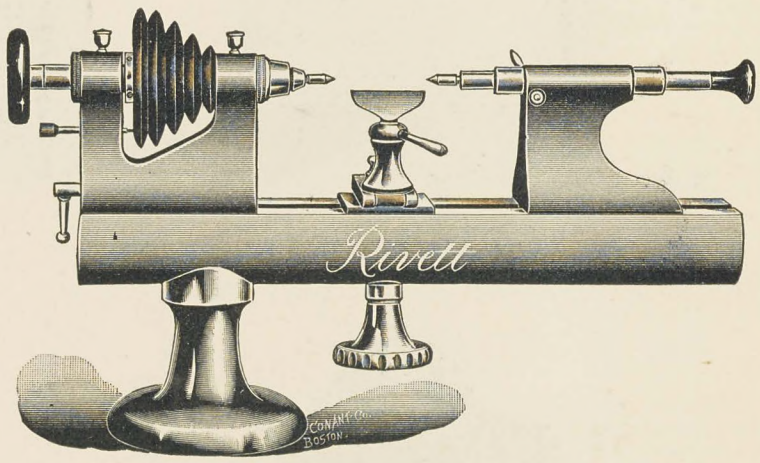
TERMS: FOUR MONTHS NET, OR LESS 3 PER CENT. FOR CASH

A LARGE VARIETY OF JEWELRY MOUNTED IN ALL PRECIOUS STONES

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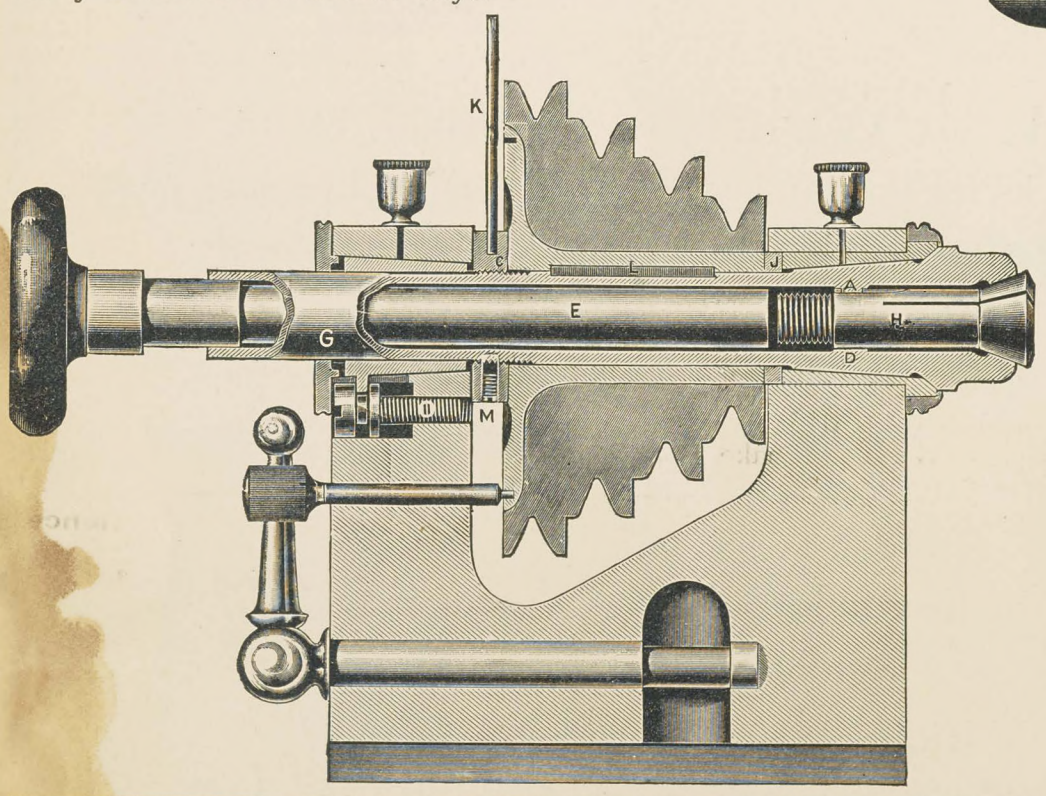
# War! War! War!

## *ON CHEAP GOODS.*




Our 1898 Lathe has routed them all.

Never before in the history of lathe-making were so many lathes sold in so few days.




Our first 100 have gone in less than a month without a single advertisement.

Our aim is always to hit the mark with

QUALITY,

WORKMANSHIP,

AND PRICE.

Never a moment but our Mr. Rivett is working to improve, and merit alone has brought us to our present high position.

Our 1898 Catalogue tells all about our 1898 Lathe. SEND FOR ONE.

## Faneuil Watch Tool Co.

Brighton, Boston, Mass.

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# S. MARTIN,

## *JEWELRY AUCTIONEER.*

TWENTY-TWO YEARS' EXPERIENCE. ALL BUSINESS CONFIDENTIAL.

**Address—1036 Cambridge Ave., MILWAUKEE, WIS.**

HALL & NEEDHAM, JEWELRY AND QUEENSWARE,
168 SECOND STREET,

MR. S. MARTIN. GALLIPOLIS, OHIO, March 20, 1898.

DEAR SIR:—We desire to thank you for the very successful and popular sale which you conducted for us, and to state that while we have had two previous sales by different parties, we have never had a sale equal to the one which you conducted. We only hope that you will always have the crowd at your sales that you had at ours.

With kindest regards, we remain, Yours respectfully, HALL & NEEDHAM.

**MARTIN'S HERE.**—S. Martin, the clever auctioneer, who last winter was listened to by thousands in disposing of the Folkers stock, and who was considered by many as the most successful auctioneer who ever sold goods in these parts, will offer at auction the stock of G. A. McHenry, 1424 Tower. Mr. Martin is a man who will only sell for dealers who carry the very best goods in the jewelry line. Mr. McHenry is one of these, and Mr. Martin states that the stock which he will offer next Monday is one of the finest which he has ever seen, and Mr. McHenry thinks he is fortunate in procuring so good an auctioneer as Mr. Martin to dispose of his stock. The people got more enjoyment at the auctions conducted by Mr. Martin last winter than at any entertainment for which they would pay one dollar or more. Watch the crowds next week, and you will find McHenry's store crowded to suffocation.—*West Superior Leader*, April 9th.



**$3.60** Net Cash.
18 Size, O. F., Screw.

**$4.85** Net Cash.
6 Size, Hunting.

**$5.90** Net Cash.
18 Size, Hunting.

Buys of **us** the **Best**

# 14 K. GOLD FILLED 20-YEAR CASES.

**Standard make,** and guaranteed by a reliable manufacturer.
Up-to-date engravings in a large assortment of designs.

Order one, or as many as you want, and if our assertion is not absolutely true, you don't have to keep 'em.

Our stock of all makes of

**Movements and Cases is Complete.**

We can fill orders for Watches from any catalogue published.

## Sproehnle & Co.

Established 1880. **Chicago.** Watch Jobbers.

**Stewart Building,**
**Cor. State & Washington Sts.**

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# *Courage of Convictions*

against prevailing usage denotes a school no less than a man.
The following statement requires courage. We alone make, apply and enforce it.

**Length of full course is two years. Pupils without previous experience not admitted for shorter periods.**
**The shortest improvers' terms for watchmakers who completed an apprenticeship is six months.**

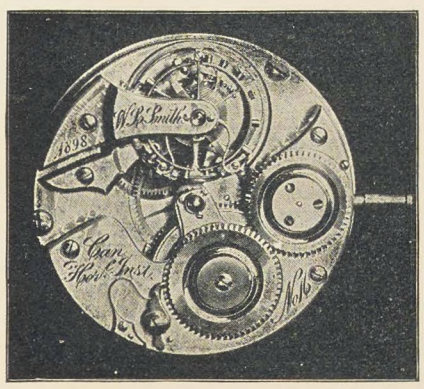
## *Why?*

**Because** the school making it must be conducted on correct lines, or it could not live.

**Because** it will receive fewer pupils, consequently a large loss of revenue (a very sore spot; we realize it fully, but stand "on merit," come what may).

**Because** it requires a man at the head of affairs who **knows enough** about his business that he cannot turn out good workmen in six months or a year, and who, besides **knowing it,** has the courage to **say so,** and take his stand "on principle" and avoid make-believe schemes. **No wonder** experts are pleased to know

**"There is one Horological School in America."**




Send for circulars.

## Canadian Horological Institute,

115 to 121 King Street East,

TORONTO, ONT.

**A School which produces Tourbillon Chronometers is O. K.**

# The 30 Greatest Things in the World

**The Greatest Empire**
is the British Empire—population, 402,515,800; area, 11,339,316 square miles.

**The Greatest City**
is London—population, 4,500,000. Streets would reach one-and-a-half times around the globe.

**The Greatest Tomb**
is Taj Mehal, in Hindustan. It took 22,000 men 20 years to complete it.

**The Greatest Structure**
ever raised by man is the Great Pyramid—746 feet square at the base; 449 feet high.

**The Largest Dwelling House**
is near Vienna, and contains 1,500 rooms.

**The Grandest Structure**
is the Temple of Karnak, occupying an area of nine acres.

**The Greatest Canal**
is the Suez—length, 95 miles; depth, 26 feet.

**The Largest Flower**
weighs 15 pounds and grows in Sumatra.

**The Longest Canal**
is the Imperial Canal of China. Length, 1000 miles.

**The Largest Insect**
is a native of Central America. Wing expansion, 18 inches.

**The Greatest Wall**
is the Chinese Wall, built for protection. Length, 1280 miles.

**The Largest Sheep Ranch**
is in Texas. It contains 400,000 acres.

**The Greatest Waterfall**
is the Horseshoe (Niagara) Falls in Canada.

**The Largest Crater**
is in the Sandwich Islands. Circumference, 20 miles; depth, 2,000 feet.

**The Greatest Church**
is St. Peter's in Rome. Height of dome, 448 feet.

**The Largest Geyser**
is in the Yellowstone Park, Colorado.

**The Largest Statue**
is the Statue of Liberty in New York Harbor. Height, 151 feet.

**The Largest Stockyards**
are in Chicago. They contain 20 miles of streets.

**The Greatest Suspension Bridge**
is Brooklyn Bridge. Length, 5,989 feet.

**The Largest Cask**
is in Nuremberg. It is 105 feet in diameter and 51 feet deep.

**The Greatest Cavern**
is Mammoth Cave in Kentucky. Length, 10 miles.

**The Longest Fence**
is a wire fence in Australia. Length, 1,236 miles.

**The Greatest Sea Depth**
is in the South Atlantic Ocean. Depth, 40,236 feet, or 8¾ miles.

**The Hottest Region**
is the southeastern part of Persia. Temperature has been over 100° for over two months.

**The Greatest Bell**
is in Tokio. Rim, 68 feet; height, 21 feet.

**The Largest Sundial**
is a natural one in the Ægean sea, formed by a high promontory and circle of islands.

**The Largest Search Light**
was exhibited at the Chicago Exposition. Light equal to 375,000,000 candles.

**The Highest Monument**
is the shaft to Washington, in Washington, D. C. Height, 555 feet.

**The Largest Library**
is the National Library in Paris. Has 40 miles of shelves and 1,400,000 books.


## The Largest Watch Case Factory in the World




Capacity, 2500 Watch Cases per day

Manufacturers of

KEYSTONE SOLID GOLD

JAS. BOSS 14 K. FILLED
Guaranteed for 25 years

JAS. BOSS 10 K. FILLED
Guaranteed for 20 years

CYCLONE ROLLED-PLATE
Guaranteed for 10 years

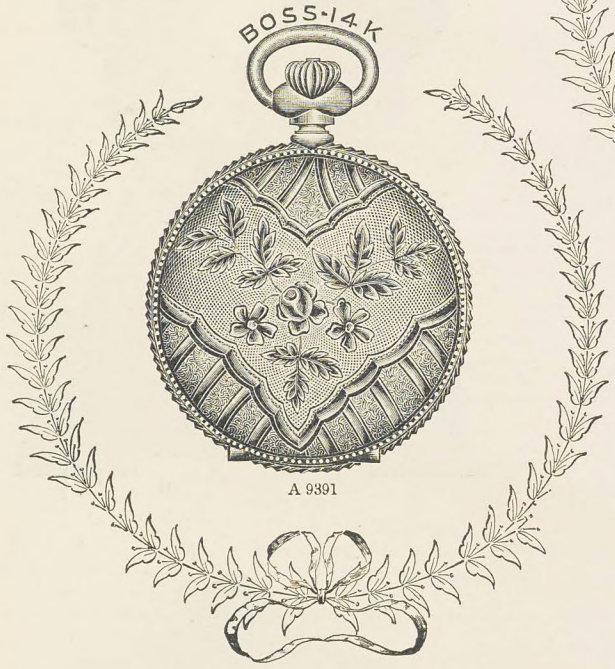
KEYSTONE SILVER

SILVEROID

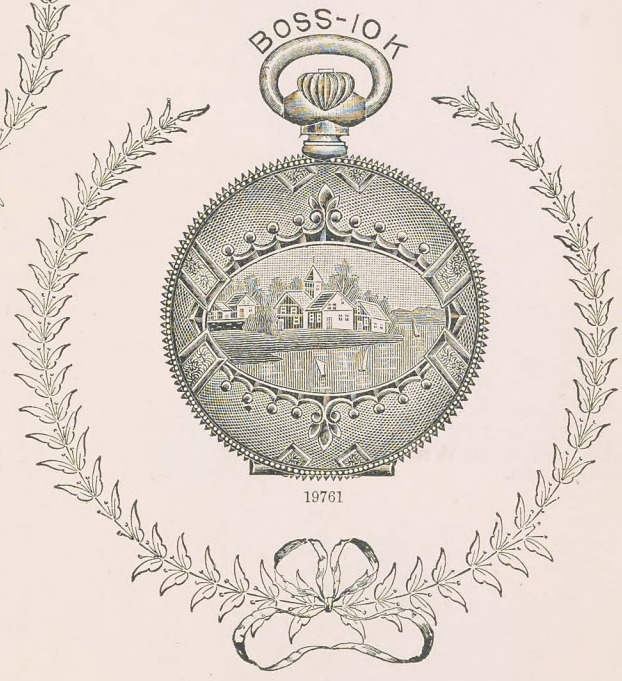
# THE STANDARD SIX



9096



A 9391



19761

Hundreds of
**New Patterns**
in each grade
and in
**All Sizes**
now ready.



760



150



2347

Samples of these cases
can be had of any jobber.

**KEYSTONE WATCH CASE COMPANY**
19TH & BROWN STREETS, PHILADELPHIA, PA.

# THE "METALS"

## NEW SELLERS



**The "METALS."** 8-day clocks; made in oak only; 23 inches high; ornamented with metal trimmings, old brass finish. Packed in assortments; 6 clocks, one of each pattern, in a box.

**Assortment A** = 6 Wire Bell, Half-Hour Strike.

**Assortment B** = 6 Wire Bell, Half-Hour Strike, Alarm.

**Assortment C** { 3 Wire Bell, Half-Hour Strike.
3 Wire Bell, Half-Hour Strike, Alarm.

**Assortment D** { 2 Wire Bell, Half-Hour Strike, Alarm.
2 Gong Bell, Half-Hour Strike, Alarm.
2 Wire Bell, Half-Hour Strike.

**Assortment E** { 3 Gong Bell, Half-Hour Strike, Alarm.
3 Wire Bell, Half-Hour Strike, Alarm.

**Assortment F** = 6 Gong Bell, Half-Hour Strike, Alarm.

---

# SETH THOMAS CLOCK CO.

*Makers of Clocks, Regulators,*
*Watch Movements and Tower Clocks.*

49 Maiden Lane, NEW YORK.
144 Wabash Avenue, CHICAGO.
126 Sutter Street, SAN FRANCISCO.

# THE KEYSTONE

VOLUME XIX. PHILADELPHIA, MAY, 1898. NUMBER 5



## THE KEYSTONE

A MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF THE JEWELRY AND OPTICAL TRADES.

B. THORPE, PUBLISHER.

**Subscription—One Dollar per year,** postpaid, to all parts of the United States and Canada; **single copies, 15 cents.** To Foreign Countries **10 Shillings ($2.44) per year; single copies, 1 Shilling (25 cents).**

**Payment for THE KEYSTONE,** when sent by mail, should be made by a Post-Office Money Order, Bank Check, or Draft, or an Express Money Order. When neither of these can be procured, send the money in a Registered Letter. **All Remittances should be made payable to THE KEYSTONE.**

**Change of Address**—Subscribers desiring their address changed should give the old as well as the new address.

**Advertisements**—Advertising rates furnished on application. No advertisements but those of a reputable character will be inserted.

**To Advertisers**—Copy for advertisements must reach us by the 25th of each month to insure insertion in the issue of the following month. Notices of changes in advertisements should reach us not later than the 20th of the previous month.

**Correspondence**—We invite correspondence on all matters of interest to the trade. Correspondents must invariably give their name and address. We do not, however, hold ourselves responsible for the opinions of our correspondents.

All communications should be addressed to

THE KEYSTONE,
19TH & BROWN STREETS,
PHILADELPHIA, PA.

CHICAGO OFFICE, 103 STATE ST.

AGENTS FOR AUSTRALIA, S. MAYER & CO., 279 GEORGE ST., SYDNEY, N. S. W.

AGENT FOR GREAT BRITAIN, THE ANGLO-AMERICAN OPTICAL CO., 94 HATTON GARDEN, LONDON, E. C.



**Index to Advertisers on page 419.**


*CONTENTS.*


| | Page |
|---|---|
| AMONG THE TRADE, | 366, 370 |
| EDITORIAL, | 357, 358, 359, 360, 361 |
| HOROLOGICAL EDUCATION IN THE WEST, | 380*j*, 380*k* |
| ITEMS OF INTEREST | 414 |
| KNOW YOUR CUSTOMERS | 372 |
| NEW GOODS AND INVENTIONS, | 364 |
| NEWS LETTERS: | |
| Chicago, | 380*b*, 380*d*, 396*g* |
| Cincinnati, | 380*f* |
| Cleveland, | 380*i* |
| Columbus, Ohio, and Vicinity | 396*g* |
| Kansas City and the Great Southwest, | 379 |
| News from the Northwest, | 380*l* |
| New York, | 362 |
| Philadelphia, | 364 |
| Pittsburg and Vicinity, | 396*h* |
| Providence and Attleboro, | 396*h* |
| San Francisco Letter. | 380*i* |
| St. Louis Letter, | 380*l* |
| OPTICAL DEPARTMENT: | |
| Among the Opticians, | 385 |
| Examining School Children's Eyes | 396*e* |
| Lens-Grinding for Prescription Work, | 396*c* |
| Manual, | 389 |
| Questions and Answers, | 395 |
| Reviews of Current Ophthalmological Literature, | 383, 385 |
| Sample Advertisements | 396*c* |
| Societies, | 396*a* |
| The Dark Room in Optics | 391, 393 |
| The Wave Theory of Light | 387 |
| OUTING IN THE WOODS OF NORTHERN MICHIGAN | 403 |
| POINTS ABOUT TRAVELING MEN | 374 |
| SAMPLES OF SEASONABLE ADVERTISEMENTS | 407 |
| TECHNICAL ARTICLES: | |
| American Lathes and Their Attachments, | 405 |
| Arts Allied to the Jewelry Trade, | 401 |
| Clocks, | 368 |
| Electro-Metallurgy, | 380*f* |
| Watchmakers' Tools, and How to Use Them, | 412 |
| Workshop Notes, | 380, 399, 409 |
| THE CLIMAX OF BICYCLE PERFECTION | 380*h* |
| TRANS-MISSISSIPPI AND INTERNATIONAL EXPOSITION | 411 |
| TWEEZER'S TALKS, JOHN, | 376 |


**TO UNWRAP YOUR KEYSTONE, SIMPLY PULL THE STRING**

DURING the present crisis it is the part of isdom for our business population to keep cool and confident. There is no cause whatever for undue alarm or excitement. No battle will be fought on our territory, and it is doubtful whether a single Spanish warship will ever get within dangerous distance of our coast. Proceed calmly with your business vocation, good friends, and quietly await certain victory.

### Don't Give Your Subscription for The Keystone to This Swindler.

WE warn the trade once more against a swindler who is soliciting subscriptions for THE KEYSTONE without authority from us. He operates with a list of reputable publications, THE KEYSTONE among the number, and purports to represent some mythical subscription agency. Some of the receipts given for subscriptions received by him bear the name of the National Book and Subscription Agency, of Chicago, and others the name of the International Subscription Co., of New York—both bogus concerns. At different times he has signed his name as William Myers, John Knowles, Benjamin Newton, P. S. Harpt and Thomas Black, and, no doubt, has numberless other aliases. His description, as far as we can learn, is as follows: height, about 5 feet, 6 inches; weight, about 145 pounds; age, about 40 years; has light gray moustache, short, light hair, is a good talker and well posted, though he has not an impressive appearance.

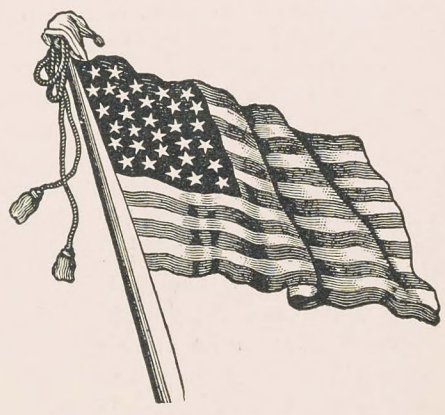
No subscription agency has any authority to collect subscriptions for THE KEYSTONE, and every subscription given to a solicitor representing any such agency is a dollar lost. Do not give your subscription to any one not personally known to you, or of whose identity and trustworthiness you are not positively assured.

The swindler above described was operating in Wisconsin in February, and was last heard of in Nebraska. We warn the Western trade particularly against him.

### Rally 'Round the Flag.

"IN the name of humanity, in the name of civilization, in behalf of endangered American interests which give us the right and the duty to speak and to act, the war in Cuba must stop." These historic words of President McKinley contained the substance of his memorable message to Congress. Since then war has been formally declared against Spain, our fleet has blockaded Cuban ports, and a close-range conflict with Spanish warships is being awaited with nervous eagerness. With matters standing thus at this writing, and recalling the events of the past month, we cannot but feel proud of the becoming and dignified conduct of our country and our President during the prolonged and trying negotiations with the Spanish Government. Mr. McKinley bore himself throughout the delicate crisis in a manner worthy of his high office, and the American people feel justly proud of their Chief Executive. His course compelled even the sanction of the great powers, and we at home, having before us such unmistakable proof of his capacity, will be all the more willing to follow his leadership in the war with implicit confidence in his wisdom and discretion.

NOW that a conflict has been forced upon us, there is but one course open to every citizen who enjoys the protection of our flag, viz., to rally to the support of the Government to the end that the struggle may be brought to an early and successful conclusion. There is no longer room for even honest differences of opinion, much less for partisan bickering. Union is imperative. Anything else is treason. The forced submission of the foe may entail sacrifices, but the sacrifices must be cheerfully made. The separation of mothers from their sons, wives from their hus-



bands and children from their fathers is a painful spectacle, but the sacredness of the cause ennobles and glorifies it. Never in the history of nations did a country make so unselfish a sacrifice for a suffering sister as we are making for Cuba. This is not a war of aggression or conquest. We entered the conflict knowing full well that our only reward will be the consciousness that we have performed a duty to humanity, and by its performance have emancipated from an intolerable thralldom our suffering neighbor. But what nobler record than this? We know of none. The conflict is now on, and must be waged with resistless vigor till we have reduced to submission the treacherous and cruel foe that forced this struggle at arms. "Success to the flag!" is the patriotic prayer of THE KEYSTONE and its army of readers. May the fight be brief and the victory decisive!

### Ample Preparations for War.

WAR preparations on such an extensive scale as will insure a speedy and successful termination of the conflict proceed apace. The President's call upon the Governors of the States for 125,000 volunteers for active service has been responded to with an alacrity and enthusiasm that leave no doubt as to the temper and ebullient patriotism of our people. This addition has placed immediately at the disposal of the Chief Executive a total force of 186,000 men—the present regular army numbering 61,000. The regulars are at present conveniently placed for a speedy invasion of Cuba, and the War Department calculates that

in a couple of weeks the volunteer troops will be similarly conveniently located for whatever active service may be assigned them. In the meantime vigorous recruiting will be carried on, and the world will soon be wondering at the celerity with which we can place in the field a force equal to any emergency that may arise. This display of resources and energy will, in itself, be an impressive lesson to all whom it may concern.

---

FOR the expense of the war ample provision is being made. The Ways and Means Committee of the House framed a revenue measure which will add about $100,000,000 to the current yearly revenue. It is proposed to raise by the taxation of fermented liquors $35,000,000; tobacco, $15,000,000; cigars, $5,000,000; tobacco licenses, $5,000,000; stamp taxes, $30,000,000 or more; and tonnage tax, $2,500,000. Besides this, in order to secure money for immediate purposes, a $500,000,000 loan has been authorized. We are thus contracting an enormous indebtedness, but war is an expensive game, and in such a contingency there will be no grumbling by our patriotic people at providing the "sinews" or pledging the national credit to whatever extent the Government deems advisable.

---

UNDER the provocation of the Spanish in Havana, it is doubtful whether a peaceful blockade of the island can be much longer maintained, and the shelling of the Havana fortifications is not unlikely. It has already been decided that American troops will be sent to Cuba to form a base of supplies, and an appropriation to cover the expense of the preliminary invasion has been made by the War Department for this purpose. Besides our operations against Spain in American waters and on the Island of Cuba, the Philippine Islands in the Pacific, a Spanish possession, will also be attacked by our fleet. These islands—with a population of over 7,000,000, vast sugar, hemp and tobacco growing industries, and large undeveloped mineral resources, the value of which can scarcely be estimated—are Spain's chief colonial treasure. As a prize of war or as security for indemnity, the Philippines would be a most desirable temporary possession. The United States is much advantaged in that the insurgent forces both in Cuba and the Philippines will co-operate with this country in any action taken. A large Spanish fleet is now hastening across the Atlantic, and whatever port of this country may be its destination, we have no fear that our fleet will be either outflanked or worsted. Our people have no other thought than victory.

---

### Window Displays for Decoration Day.

IT is fortunate for the trade that almost every month in the year has a day, or days, commemorative of certain historic events or personages which suggest excellent ideas for appropriate and attractive window displays. Memorial Day, which occurs during the present month, affords such an opportunity. But, just as at Easter the purely spiritual feature of the festival should not be so mixed with the commercial as to offend religious feeling, so neither on Memorial Day should the pathetically commemorative feature be so identified with trade possibilities as to offend the popular sentiment of patriotism which abhors, or should abhor, self-interest. Exercise of good judgment is necessary to this end.

#### Timely Appeals to Patriotism.

A display of the symbols of patriotism and war will always attract attention on Memorial Day, and especially this year on account of the revival of the martial spirit, owing to our complications with Spain and our extensive war preparations. An exhibit of the old clumsy weapons of war used during "the late unpleasantness," in contrast with an exhibit of up-to-date weapons of to-day, would be interesting, and many jewelers can obtain the loan of such weapons for the occasion. Even the mere display of a large-sized framed picture of some of our great departed generals, with appropriate draping of flags and bunting, would not only attract attention, but, merely as a manifestation of the jeweler's patriotism, it would appeal to the public. A handsome display of goods could be made in conjunction.

#### War Relics Attract Attention.

An attractive display might be made thus: Cover the floor of the window with grass sods, in the middle of which make a little mound to represent the end of a grave. On it place an old weather-beaten leaning sign, with the half-oblitered date '63. Over the grave place an old dilapidated cannon, which can be made from wagon wheels and stovepipe, partially covering both with moss and weeds. Have the mouth of the improvised cannon point towards the street, and in it place a bird's nest, with the parent bird sitting in same, and on top of the mouth of the cannon the male bird should be perched, preferably in an attitude of song. Label the whole with the sign "Peace," and there might be added as appropriate to the present situation the words "but only with honor." Flags, bunting and a wreath of flowers on the grave would complete an attractive display with which goods could be commingled, but not too obtrusively. Several clocks with the motto, "The Flight of Time," would not be inappropriate.

#### In Honor of the G. A. R.

Another appropriate display would be a shaft, which can be easily made of wood, with the inscription, "G. A. R.," on the pedestal. This shaft should be placed at the head of a grave, the floor of the window being, as in the latter case, covered with grassy sod. Perched somewhere on the monument should be a dove. On the grave place a wreath, or, preferably, have a large doll dressed in white kneeling beside the grave and holding the wreath in readiness. Behind all place a rough picket fence, against which a few old guns may be carelessly rested. The flags must be in evidence as before.

This is an occasion when figures may be used with good effect. Columbia, in an attitude of sorrow, placing a wreath on a grave would be effective; or two soldiers, one in blue and one in gray, shaking hands under the stars and stripes, would harmonize well with the present outburst of patriotism and evidence of national unity. Near the soldiers might be placed a row of clocks, all telling exactly the same time, with the sign "It's time to get together." Figures of a man and woman, advanced in years, sorrowfully placing a wreath on the framed and draped picture of a soldier, makes a touching tableau. Any Memorial Day display should have a profusion of flowers, and, if possible, birds, and even a card might be shown with the following stanza:

"Where the dead unknown are lying,
Northern blue and Southern gray,
Birds are singing, flowers springing;
Nature holds Memorial Day."

### A Sensible Tariff on Diamonds.

HOW beneficial, not to say essential, is the exercise of common sense in the framing of a tariff law is well illustrated in the operation of the provision of the Dingley law which relates to the importation of precious stones. Our readers will remember that the framers of the Wilson bill undertook to convert the well-known American fondness for diamonds into an additional source of Federal revenue by increasing the duties on a big scale. On uncut stones, which had been coming in free, they put a duty of 10 per cent., and on cut stones they raised the import tax to 25 per cent. ad valorem. In vain did representative members of the trade contend that the inevitable result would be wholesale smuggling, demoralization of the diamond business, and a decrease of revenue. Deputations to Washington proved of no avail, and the provision went into effect. It took but a few months to prove the correctness of the diamond dealers' forecast. Instead of taking an upward flight, import duties dropped until, if one could judge by the custom-house figures, the importation of cut stones practically ceased.

But while the Government revenues from imported diamonds steadily diminished there were abundant evidences that large quantities of diamonds were being introduced into the American market, much to the discomfiture of reputable diamond dealers. Smuggling was frequently detected, but the customs authorities, and the trade, soon became satisfied that the detected cases constituted only a small percentage of the perpetrated cases. The Wilson bill had made the import duty on cut stones so high that it operated as a premium on smuggling.

---

THE Dingley bill corrected the mischievous error made by the Wilson bill, as we informed our readers at that time, reducing the duty on cut stones to 10 per cent., and restoring uncut stones to the free list. This change has operated both for morality and for revenue. Diamond smuggling has greatly decreased, if it has not practically ceased, and the Federal revenue from precious stone importations has nearly doubled. Official figures recently compiled for the local appraiser of the port of New York, says the *American Economist*, show that during the month of March, 1898, $720,816 worth of diamonds were imported, as compared with $102,160 worth imported in March, 1897. Of cut stones alone $481,007 were imported in March, as against only $33,957 during the corresponding month a year ago.

But the most eloquent showing is made in the comparison which the appraiser's statistician institutes between the aggregate amount of duties paid into the Government Treasury on precious stones during the last nine months and during the corresponding period a year ago. Thus the effect of the provisions of the Wilson bill and the Dingley bill is directly contrasted. The whole amount of the duties paid on the $1,933,877 worth of diamonds imported from August 1, 1896, to April 1, 1897, was $310,361, while the whole amount of duties paid on the $8,541,429 worth of diamonds imported from August 1, 1897, to April 1, 1898, was $546,540.

This showing has a wider than a mere trade interest, for it proves the seemingly paradoxical contention that, at least in one commodity, lower duties meant higher revenue, a fact recognized by the advocates of a high tariff and lost sight of by their opponents.

### Futile Fight Against Department Stores.

AS the organ of one of the most important sections of the retail trade, THE KEYSTONE is in full sympathy with the movement to restrict the department store by taxation, or other lawful way, to such an extent as to give a fair competitive field to all merchants. Having for this reason vigorously agitated the movement, we regret to find that it has thus far produced no tangible result. The proprietors of the department stores continue to regard with suggestive indifference all efforts at restrictive legislation, and they ridicule the idea that such legislation can be devised as would constitutionally limit their field of operations without detrimentally affecting business-doing generally. This view would, indeed, seem to be sustained by recent experiences, but THE KEYSTONE shares the generally accepted view that the failure of attempted restrictive legislation thus far may have been due rather to the manifest impracticability and intrinsic absurdity of the measures drafted, than to the hopelessness of the attempt, though we must confess that we are not over-sanguine.

---

WE have had recent instances both East and West of the utter unreasonableness with which anti-department measures have been drafted. Such a measure was introduced in the New York Legislature during the last session. It specified eighty classes of goods now dealt in by department stores, and these were arranged in thirty-six groups. The store was taxed by a species of geometrical progression according to the number of groups handled, and so absurd was the grouping that the carrying on of a regular retail jewelry and optical business of comprehensive character would necessitate the payment of the maximum tax of $100,000 per year! Of course the measure was killed on sight. An ordinance with a similar object in view was drafted by the Denver Board of Alderman and passed by the Board of Supervisors, who are aware, no doubt of its self-nullifying character. The taxation provided for was described by the *Denver Republican* as "most inequitable, amounting in the case of a department store with a dozen departments to 256 per cent. of its assessed valuation, and of one with twenty-two departments to 262,144 per cent. of its assessed valuation, or, in the case of a store of the latter character with assets of $800,000, a license tax of $2,097,152,000." Such legislative absurdities, of course, die aborning.

In framing anti-department store legislation it must be kept in mind that these conglomerate marts have become, in the evolution of trade, a very important, if not a vital, part of the local body commercial. They have grown up with the town, so to speak, give extensive employment and enjoy public favor. To strike these stores effectually will call for much more thoughtful and reasonable measures than those above referred to. Almost any law or ordinance, apart altogether from its constitutionality, can be used with effect against peddling nomads, fly-by-night auction houses, and such, but only a law that can stand alike the constitutional and common sense test will be operative against established influential department stores. Can such a law be framed? is a vital question for the special line merchant.

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THE most vigorous and intelligently conducted anti-department store fight has been waged in Illinois, more especially in Chicago, and, as if hopeless of restrictive legislation, the special line merchants of that city have entered upon a new plan of campaign described as follows: A number of wealthy merchants have banded together and organized what is known as the Merchants' Co-operative Mart. They have leased an entire building, and will establish a depot for the purchase and disbursement of bargains to the various members of the association, which is made up of dealers allover the city. Goods are to be supplied at actual cost plus seven per cent., and membership fees graded from $150 to $1,000 are to make up the running expenses, in addition to the seven per cent.; thirty per cent. of the net profits of the enterprise are to be prorated back to the members at the end of each year.

This is simply a department store run on co-operative principles, and the outcome of the experiment will be awaited with interest. There are many considerations that incline one to question its practicability, but on the other hand we are willing to hope that it may be the beginning of a new trade development.

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### Our First Foreign Sample Warehouse.

THE most important and practical steps yet taken in the organized movement to extend our foreign trade was the opening, some weeks ago, of our first sample warehouse in a foreign country. This warehouse was established under the auspices of the National Association of Manufacturers of the United States, in Caracas, Venezuela, and was opened on March 29th, in the presence of the President of the Venezuelan Republic and the members of the diplomatic body, the Government Ministers and other distinguished guests, representing the commercial interests of this country and Venezuela. In such distinguished company it was formally dedicated and officially set aside to the purposes for which it was established—the upbuilding of trade between an important South American State and the principal country of the American hemisphere. The occasion emphasized the good feeling that exists between the two republics. The Venezuelan President welcomed our manufacturers "to a land of brethren, and to the hospitality of a people truly grateful, whose government entertains the sincerest wishes for the prosperity of the United States and for uninterrupted fraternal relationships between the two nations."

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THE sample warehouse, situated right in the center of the important city of Caracas, is an imposing edifice affording a frontage of 120 feet and a depth of 230 feet. It is wanting in nothing, and even contains a garden, which will shortly be devoted to the exhibition of agricultural implements, windmills, machinery, etc., etc. It is intended to serve as a permanent exhibition, and as a bureau of information both for the Venezuelan buyers and for the United States producer, rather than a store for the actual sale of goods. Its aim is to bring American goods before the buyers in Venezuela more prominently than is possible by any other means at present available.

The advantages of the warehouse to the people of Venezuela will be the following:

1. They can examine, under favorable conditions, the various lines of American goods for which Venezuela affords a market.

2. The public merchants, as well as consumers, will be able to obtain all desired information about the goods, their cost, manner of sale, etc.

3. The public will have access to the catalogues of manufactures, and will be placed in communication with the makers of any particular article which they may desire to obtain.

4. They can consult files of all American newspapers, trade journals, Government publications, directories and reference books of trade.

5. They can see, in actual operation, agricultural implements of all kinds suited to the conditions of the country, and to this end they have been offered the co-operation of the Venezuelan government. This is a matter of vast importance to both countries.

The warehouse scheme is nothing if not practical, and in conceiving and carrying it out at their own expense the National Association of Manufacturers has earned the gratitude of all wage-earners.

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### Marking of Imported Watches.

THOSE of our readers who made themselves acquainted with the provisions of the Dingley law in relation to the importation of watches will remember the following section:

> That no article of imported merchandise which shall copy or simulate the name or trade-mark of any domestic manufacture or manufacturer, or which shall bear a name or mark, which is calculated to induce the public to believe that the article is manufactured in the United States, shall be admitted to entry at any custom-house of the United States.

On February 14th last the Treasury Department issued a circular in relation to the above section to the following effect:

> Officers of the customs are instructed to refuse entry of any articles bearing the name of any well-known domestic manufacturer, or a fictitious name purporting to be that of a domestic manufacturer, or the words "United States," or the name of any State, city, or town in the United States, whether the name of the foreign country appears thereon or not. The name of the importer or dealer in this country (otherwise than as above prescribed) may appear, if the country or origin is equally legible upon the articles.

By further rulings of the department during the past month the name of some city or town in the United States may appear in conjunction with the name of the importer or dealer, but only under certain specified conditions. Under the date of April 5th the Department ruled that chinaware manufactured in France might be admitted to entry if, in addition to the words "Made in France," the words "For the Cowell & Hubbard Co., Cleveland, O.," etc., also appeared, provided the name of the country of origin should be equally distinct and conspicuous with the domestic address. Under the date of the 8th instant, the Department issued a circular in regard to the marking of imported goods bearing registered trade-marks, in which it was held that the words "Made in Germany" (or other country of production) must appear on the same surface with, or in close proximity to, the trade-marks, and that "the address of an importer or dealer in this country who is not a manufacturer may likewise appear under the above-named conditions."

According to these rulings Swiss watches and movements may be delivered in this country if, in addition to name of country of origin, name and address of dealer in the United States appear, all with equal conspicuity.

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THE number of communications we are receiving gives evidence of a widespread interest in the subject of optical organization. Let the good work go on. There should be a strong association in every State in the Union, and we shall be pleased to be the medium of bringing together members in any locality where the need of organization is felt.

## Advertising Chains.

MORE chains could be sold, if jewelers willed that there should be. The sale of a chain is usually left to depend upon the sale of a watch—the two going together to make an "outfit." Yet the chain will wear out before the watch; or the wearer might be impressed with the fact that his, or her, chain is shabby, or out of style; and there thus seems to be legitimate ground for belief that more chains would be sold if they were more frequently *specially* advertised. They pay a good profit; they do not involve a large investment of capital; there is no reason why they should not be pushed into greater prominence in the jeweler's stock. This article will suggest ways to do it.

The subject will be considered under three titles: Newspaper Advertising of Chains, the Chain Boooklet, and the Chain Window.

### Newspaper Advertising of Chains.

To economize our space, the models will be shown in "single column" space, though of course the same matter will be more effective if put into double-column space, with plenty of white margin around the print.

Here are two suggestions for *general* advertisements of gentlemen's chains:

**Men's Chains.**

A man has opportunity of showing only three articles of jewelry in his external dress—a ring, studs *or* a stick-pin, and a watch chain. The chain is the *conspicuous* item. It is important, therefore, that its quality should be as good as the man can afford, and its style be distinguished for taste and character.

I have taken special pains in selecting a comprehensive stock of Men's Chains. I am sure you will say that the patterns are the most tasteful ever shown in this town; and the prices have sufficient range to fit every pocket-book. It won't cost you anything to look at them.

CHARLES SWIVEL,
The Market Street Jeweler.

**Shabby, isn't it?**

Our familiar belongings grow old and unsightly to others' eyes before our own accustomed and unconscious eyes perceive their gradual decline. Look at your Watch Chain, now—and since your attention is called to it you see that it *is* shabby, unattractive, out of date.

Nobody but a very rich man can afford to go shabbily dressed. Trimness is a sort of social credential; a guaranty of solvency; a certificate of self-respect. You can't afford to challenge the good opinion of good people by continuing to wear that shabby chain, when a choice of many beautiful new patterns can be bought at a moderate price from the great variety shown by

SWIVEL, the Market Street Jeweler.

Following is a suggestion for an advertisement of a *special* chain:

Some time ago, when the fashion was new, it was called "the dude's chain"; but it has outgrown that distinction, and is now worn by the serious and sensible men of affairs, of all ages, who give proper thought to the subject of proper dress.

This Vest Chain is double; fastened to the button-hole, one strand goes to the left vest-pocket, to the watch, while the other goes to the right vest-pocket, where it secures a pencil, a cigar-cutter, or some such handy article. The balancing strands produce harmonious lines. A tasteful Charm—say, an oval bloodstone with intaglio cutting—hangs from the center, where the curving lines join. It comes in light, graceful patterns of Rope, Trace, Curb and small Square links. You will find the best assortment of these "Dickens" Chains at

Swivel's, Market St.

To advertise chains for ladies:

*"Beauty Unadorned"*

*is not "most adorned": she needs one of these graceful Lorgnettes to complete her perfections.*

*The latest patterns of round-the-neck Chains, just arrived, speak the last word of dainty art. The collection embraces examples in gold, silver and fine rolled-plate. The Chains are delicate but strong; the slides are exquisitely adorned with various stones or rich chasing; and the price is less than you would guess. They beckon to you from the window of*

*Swivel, the Jeweler.*

### The Chain Booklet.

We submit a suggestion for a *booklet* advertising chains, to be used in connection with the "Chain Window," described in the article immediately following this. The booklet-form is used, because a majority of jewelers may conclude that the cost would be too great to publish the matter (with proper "display") as an advertisement in the newspapers.

Used in connection with the window display, the booklets should be stacked in one corner of the window, where the title (which can be read from the outside) will be explanatory of the contents; and if a card is placed on top, inscribed, "Step inside and get one," it is probable that a majority of passers-by will be sufficiently curious to accept the invitation—with pleasant possibilities for the proprietor.

The ostensible purpose of the booklet is to tell about chains; but that is only its secondary office. Its *primary* office is to *inspire confidence*, in a general way, in the merchant and his store; thus benefiting *all* the lines he carries, and stimulating the growth of the business as a whole.

On the front cover of the booklet print this only, in bold type:

Some facts concerning
Chains that "wear"—
and the other kind.

Following is the body of the booklet:

It is well to have some knowledge of values before purchasing a Rolled-Plate Chain—for rolled-plate can beat even a diplomatist at lying. This little book is for your enlightenment.

The stock of Chains now in my window (and in my show-cases inside, after this window display makes way for another) comprises three qualities. The different qualities of the same pattern *look* nearly the same—and there's the sorrow for the ignorant!

To enable you to "study your lesson" satisfactorily, I have picked out one of each quality, in the same style (called the "trace" chain, in the trade), and laid them side by side in the left corner of the window, each one descriptively tagged. To the three out of my own stock I have added another sample, which I bought *for show*. It is not for *sale*—for reasons which will appear.

The aristocrat of the quartette is the one tagged "¼ Gold"—which means that one-fourth of the "stock" of the chain is solid gold. It is expensive—will cost you $8.50—but will probably outwear *you*. It is the next thing in value to a solid gold chain.

The one next to it, which looks like the first one's twin, tagged "Regular Stock," is the staple *good* chain of every self-respecting jeweler's stock. It is one-tenth gold, is honestly made, and worth its price—$5.00.

The third in order—the duplicate in appearance of the others, from where you are viewing it—is a *cheap* chain. I make enough profit on it in selling it for $2.00. It is about one-twentieth gold. It really isn't *bad*, owing to cleverness in manufacturing. Some of them wear surprisingly well, indeed; I have yet to hear a complaint from a buyer that he did not get value for his money. When one buys a suit of clothes for $10.00, he doesn't *expect* it to wear forever.

But I decline to sell anything in Rolled-Plate Chains of *lower* quality than this third grade. There *is* a lower quality, and the sample of it is the chain which I specially bought for this object lesson. It is the fourth of the quartette, tagged "The Fraud."

This chain cost me 40 cents! It costs something to make a good-looking chain like this, even out of brass. But how much gold do you *suppose* can be put on the brass, after the cost of making and marketing it is considered in the profit of the manufacturer who sells it to me for $4.75 per dozen? And yet to your untrained eye, it looks the very twin of the fine fellow for which I must ask you $8.50!

Evidently, in buying a Rolled-Plate Chain you should go to a jeweler in whom you have confidence. It may be expensive to you to gamble on a chance.

Inside I will show you *the distinguishing stamps of the different qualities, on the swivels of these chains*, for your further enlightenment and comfort in buying.

Every second chain customer asks me, "How long will it wear?" Let me anticipate the inquiry of the *prospective* customer by answering here: *As long as it should, if it is bought here*—which means just this:

The same "wear" is not given to the same chain by different wearers. The man who works in a flint mill, where the air is constantly full of gritty particles, will grieve in a year or two over the "worn-through" chain which the parson could carry for five, or ten, years without questioning the integrity of its plating; the clerk who rubs forward and back against the edge of a desk will complain long before his country cousin who wears his best chain only with his best clothes. The "wear" of the chain depends so much upon the *wearer* of the chain that I decline to guarantee any specific length of wear, in any grade of chain. I only guarantee that *it will wear as long as it should, for the price you pay.*

And, speaking of guarantees, I want to relate an amazing fact, in connection with my purchase of the 40-cent "show" chain, which I bought to complete my object-lesson in the window: When I picked out the pattern the manufacturer said, "What tag do you want on?" I asked, "What do you mean?" He replied, "We put on either one of these tags, as desired"—showing me three tags. One read, "Guaranteed 5 years"; another, "Guaranteed 10 years"; another, "Guaranteed 15 years"!

And the whole question of "guarantees" on Rolled-Plate Chains is answered by this incident, wherein, had I been unscrupulous, the way was open for me to delude you, as you can see. I have the sample chain *only*, and it is not for sale. I prefer to sell qualities which I can *recommend*, in various degrees of recommendation *according to the varying prices which indicate their varying worth.*

**The Chain Window.**

Chains lend themselves to the skill of the window decorator to a peculiar degree, inasmuch as their *pliability* enables him to form pleasing outlines of designs and "pictures" through their use. In this respect they are the exception to all the items which make up the jeweler's stock. Watches, rings, pins, silverware, etc., are rigid forms; cannot be modified in shape, piece for piece; hence the *continuity of the double-curved line*—the Hogarthian "line of beauty"—is not possible by using them in a design. A *broken* line can be formed—as, say, by laying small pieces of jewelry end to end continuously—but not the eye-satisfying beauty of the *unbroken* sweep of the double-curve, which has always been the artist's ideal of perfection of "line." (See Ruskin's analysis of the art of Turner, Dürer, Tintoretto, etc.)

Get enough black velveteen to cover the floor of the window, as the base for your display. Chains show to better effect, in a large field, on this material than on any other. The dead-black "pile" of the velveteen is the best foil for the peculiar "high light" and shadow of the joined links. Velvet is still better, but may be regarded, generally, as too expensive.

On this lustreless-black ground the window-dresser has the opportunity of making an exceedingly artistic and pleasing effect, using nothing but chains in their various forms—including chain bracelets. The fifty-two-inch lorgnette chain of very fine, closely woven links, now so much in vogue, seems to have been invented for the special benefit of his skill and wit. He should make the most of the fashion while it lasts.

Beginning with the simplest decoration, within the skill of the jeweler whose "fingers are all thumbs," and with only a limited stock of the various kinds of chains on hand—see how much *he* can do in the way of effective display, with the small resources of skill and stock at his command. He can surely make a large wheel, if nothing better. With a bit of chalk tied to the end of a string eighteen or twenty inches long, his thumb pressing down on the other end of the string, in the exact center of the window, he can lightly trace a perfect circle of thirty-six to forty inches on the velveteen, by revolving the chalk around the fixed center. Then make a dot to indicate this exact center. Form the rim of the wheel by laying lorgnette chains end to end; a half inch inside, all around, lay another circle of the lorgnette chains. The spokes will be formed of gentlemen's vest chains, the swivels touching the inner circle of the rim. By laying the toggles (the drop-piece of the chain, from which the charm hangs) at right angles with the chains, *they* will form a circle near the hub; and still another circle will be formed by the chain bars, similarly laid at right angles with the chains. The hub can then be made of a chain bracelet or two, laid in a circle in the very center of the wheel. A less stiff effect can be given by *curving* the spokes from hub to rim, taking care to keep the line of curve uniform.

Such is a center-piece which the veriest "butter-fingers" can make; and a dozen, or a hundred, modifications of it will be very little more difficult. For instance, he can make a triangle, filling it up "solid" with chains, and then with single chains make long, graceful arabesque-lines outside—balancing the curves on one side with exactly similar curves on the other side; or he can make a criss-cross design, or a fan, or a sun-burst, or spell his own name, or make a huge closed hand with forefinger pointing toward the inside of the store; and make all of these designs entirely of chains. There is no end to the variety of attractive designs at his disposal.

But by employing the soft, fine-link, delicate lorgnette chains, and exercising high skill, he can produce really *artistic* results. Let us see.

He can make a "picture" of Cuba and the adjoining Florida coast, in outline; he can make an outline-portrait of the strongly-marked face of President McKinley, with coat collar, etc.—a "portrait-bust"; he can represent the typical industry of his community in his "picture"—a coal-breaker, an oil-derrick, a sheaf of wheat, etc.; he can "write" a patriotic sentiment; and he can frame these pictures in a graceful circle of lorgnette chains, with out-curving or in-curving spurs, or in a square frame made of heavy chain-bracelets on the outside and diminishing sizes of gentlemen's vest chains on the inside. He will find he can do remarkable things with these pliable, string-like lorgnettes, once he tries.

Thus far our suggestion makes for *attractive* quality of the window; now for its *missionary* work. Thus far it is intended to appeal only to the eye; now we want to make it speak to the reason, to the good faith and confidence of the observer; for it must "point a moral" as well as "adorn a tale." Having won its attention to its own beauty, you now want it to win respect and regard for *you*. And this is the way to make it *preach* to the congregation outside the window, from the window corners which have not yet been provided for (the designs described above occupying the *center* of the window):

In the corner, close to the glass, lay four gentlemen's vest chains, side by side, all of the same pattern but of different qualities. Select a "trace" pattern—because this style is made in all the four qualities, in the same size.

Cut four large tags out of white cardboard, say three inches by two, and attach them to the swivels of the several chains. Inscribe in large letters on the tag attached to that quality of chain, "¼ Gold"; on the next, "Regular Stock Plate"; on the third, "A Cheap Rolled-Plate Chain"; on the last, "A Fraud."

On a placard placed behind the four chains say,

What do you know about Chain qualities? Here are four chains which *look* alike. The "Fraud" is twin, in appearance, to the splendid fellow which is "One-Fourth Gold"; yet the Fraud (which single sample was bought specially for this object-lesson, and is not for sale—such quality has no place in my stock) cost me only 40 cents, while I must get $8.50 for the One-Fourth Gold.

You need to know what you are buying, when it comes to a Rolled-Plate Chain. Get one of the booklets in the other corner, and go by it. It will interest you, and may save you money.

How easily he can be deceived will thus be made apparent to the on-looker, who will almost certainly seek the safeguarding information the booklet will afford.

**An Eighteen-Hundred-Year-Old Hint.**

THE word "advertise" occurs twice in the Bible; the word "business," twenty-six times.

An exchange suggests that this seems to indicate that the ratio of business to advertising in those days was about 13 to 1.

"Be not slothful in business," wrote the Apostle Paul in his Epistle to the Romans: who will question that the injunction carried a suggestion to advertise accordingly? For otherwise would be to "gather grapes of thorns and figs of thistles," which was regarded as an unprofitable harvesting in those days.

The Apostle spoke not only to the Romans, but to all that live in all the ages. The slothful in business should hear him and heed.

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THE average show-case is too much crowded with goods. Something of the same decorative principles which are used in dressing the window could be used with advantage in the treatment of the show-case. Group the fewer articles artistically, and the eye will be more effectively appealed to than if the show-case is loaded with conglomerate varieties huddled together. There is a certain compelling power in the knowledge that there is a *reserve stock;* and when the customer has admired a certain ring, say, in a prettily arranged group of a dozen, she will be teased into a curious interest when the jeweler draws another, and another, and another from his safe for further comparison of beauty. If the fifteen were displayed together she might look at them with a languid enjoyment; but let the jeweler produce three handsome ones *not* on public view, from his "reserve," and the chances are that the customer will determine to have one of the three that no one else (supposedly) has seen, while she would not be dying of desire to purchase one of the dozen on view. It is a curious fact in feminine human nature, but it *is* a fact.

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DON'T hesitate to ask your customers for money which is due you—as, for instance, when an article was sold on the assurance that it would be paid for on a specific date. When the date is reached and passed, send a statement at once, and gently but firmly request the payment. An observation extending over a long period of years, and comparison of experiences with successful merchants, establishes beyond peradventure the fact that *it pays* to dun an overdue account. The customer respects the businesslike proceeding, however he or she may first rail at you; and when the bill is paid the customer will likely make another bill. Not so if the bill is allowed to go *un*paid: a sense of embarrassment will lead the debtor to go to the other store for the new credit, and you will lose a sale. Watch your overdue or or slow accounts, so that you may not lose "new business."

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CULTIVATE the habit of looking on the bright side of things. The sum total of happiness which you will add to your experience thereby will be worth added years to your life; the contagion of your example will be caught by your customers, to your profit; and the constant hopefulness that will grow out of the habit will help you over many a miry place in the path of trade, and "make life worth living" to those about you.




The war scare and the delay in reaching a definite conclusion, have detrimentally affected the business situation, but now that the die is cast, and war in existence, there seems already to be a relief of the tension, a lifting of the commercial lethargy and a loosening up of the business forces. The certainty of the result, the fact that there will be no war in our own territory, and that our commerce can be but little affected, have deprived the war of the terror generally associated with conflicts at arms. Business in some lines is fairly satisfactory in volume, especially in novelties, those emblematic of war, such as military belts and buckles, etc., being in active demand.

The Diamond Cutters' and Importers' Protective Association, incorporated to suppress smuggling and undervaluation of diamonds and precious stones, elected the following officers: President, H. H. Treadwell, of Tiffany & Co.; vice-president, A. J. G. Hodenpyl, of Hodenpyl & Sons; treasurer and secretary, S. Frankel, of Joseph Frankel's Sons. The executive committee consists of H. C. Hardy, of H. C. Hardy & Co.; August Oppenheimer, of Oppenheimer Brothers & Veith; Louis Kahn, of L. & M. Kahn & Co.; and Leopold Stern, of Stern Brothers & Co.

Theodore B. Starr, 206 Fifth Avenue, has added a stationery department to his store and is announcing the addition in very attractive advertisements in the daily journals.

Maxheimer & Beresford, 5 Maiden Lane, will move May 1st to the fourteenth floor of the Gill Building.

T. Quayle & Co. will move May 1st from their present quarters, at 5 Maiden Lane, into the Gill Building.

Allen & Jonassohn have moved into their new quarters in the Prescott Building, 65 Nassau Street.

The Bona Fide Pen Co., of Brooklyn, has been incorporated to manufacture gold pens, fountain pens, etc., with a capital of $1,000. Emil Dickman and Arthur Granat, of New York City, and Harry B. Dods, of Brooklyn, are the directors.

George W. Hunt has moved from 73 Nassau Street into more commodious quarters at 82 Nassau Street.

R. Fleig & Co., manufacturing jewelers, have removed to 699 Broadway and 3 and 5 West Fourth Street.

S. & A. Borgzinner have now much larger quarters and devote separate apartments of liberal dimensions to office, stock, and workroom.

The Peckham Seamless Ring Manufacturing Co. are now located in more commodious office quarters at 30 Maiden Lane, where they have increased facilities to attend to their growing business.

A recent issue of the *Brooklyn Manufacturer* contained a full-page portrait of George W. Shiebler and an interesting history of the business of George W. Shiebler & Co., silversmiths. Mr. Shiebler's many friends in the trade will be pleased to learn that he is convalescing from his recent severe illness.

Cutler, Granbery & Co. have leased offices in the Gill Building.

Max J. Lasar has moved from 24 Maiden Lane to 14 John Street.

George O. Street & Sons have moved from 15 John Street to 24 John Street. The firm occupied its former quarters thirty-six years.

The New York office of the Waite, Thresher Co., Providence, R. I., now at 178 Broadway, will be removed about May 1st to the Corbin Building, 11 John Street.

Reeves, Sillcocks & Co. have dissolved partnership, W. S. Sillcocks, Jr., retiring. The style of the firm has been changed to Reeves & Brown.

Joseph H. Sandman, representative in this city of the Trenton Watch Company, has moved from 65 Nassau Street into the Lorsch Building, at 37 Maiden Lane.

Eliassof Brothers & Co., of Albany, N. Y., will, in addition to their Albany business, open an office in the Gill Building, 9 to 13 Maiden Lane, which will be in charge of H. N. Eliassof.

Edward Swartchild, son of Samuel Swartchild, wholesale material dealer of Chicago, spent several days in this city last month. Mr. Swartchild was accompanied by a young friend, and was making a tour of the largest cities of the East. While in this city he made his headquarters at Henry Zimmern & Co., who made his visit in this city as pleasant as possible. Mr. Swartchild is a young man of pleasing address, and made a very favorable impression on those who met him during his brief stay here.

The Elgin National Watch Co., last month, asked the courts for an injunction to restrain Bloomingdale Bros., dry goods merchants of this city, from selling watches in cases made by the Illinois Watch Case Co., and known as "Elgin Giant," "Elgin Tiger," etc., which, it was alleged, were advertised and sold by Bloomingdale Bros. as Elgin watches to the injury of the Elgin National Watch Co. The decision of the court was as follows: "Motion granted enjoining the use of the word 'Elgin' either alone or in connection with others as a designation of watches sold by defendants not made by complainants. Injunction to run against marking, advertising, offering for sale or selling under such designation, without prejudice to their right to insert in such advertisements or in any description of the articles the statement that the watches were made in Elgin, if they were in fact made there; if, however, the watch cases only were made in Elgin, the statement in advertisements, etc., must conform to the fact."

A canvasser went through the jewelry district a few days ago soliciting recruits for a volunteer regiment to be made up from those connected with the trade. As the party was unknown to the trade, and seemed unable to interest any of the leading houses or prominent men in the trade, his efforts did not meet with much success.

William Barthman, retail jeweler, will move into his new quarters in the Cushman Building, corner of Broadway and Maiden, Lane about May 1st. The new store is twice the size of the old one, and will be elegantly fixtured with carved mahogany furnishings.

Otto Young, the well-known Chicago jobber, was seen strolling along Maiden Lane, recently. Mr. Young stated that he was in this city for a few days, and was accompanied by Mrs. Young. He appeared especially interested in the big office buildings just finished on the Lane.

President Fitch, of the American Waltham Watch Co., spent several days in this city last month, in consultation with Robbins & Appleton, the company's selling agents. The company report a very satisfactory trade during the early part of this year. Mr. Fitch found quite a decided change in the appearance of Robbins & Appleton's office in the Hayes Building, as the office has been completely rearranged with a view to greater convenience and adaptability of the executive and clerical force.

J. W. Riglander, of Hammel, Riglander & Co., left for Europe last month on his annual trip. He is expected back the latter part of this month.

I. Emrich & Co. have moved from 52 Maiden Lane to 42 East Fourteenth Street.

Traveler Dunning, representing A. C. Becken, Chicago, spent a few days recently visiting the trade in this city.

Chas. C. Rice, manager of the manufacturing department of Cooper & Forman, was recently appointed tenor soloist for the Union M. E. Church, West Forty-Eighth Street. He previously held a similar position with the Episcopal Church of the Epiphany, New York.

The Pairpoint Manufacturing Co., New Bedford, Mass., is furnishing its salesroom on the second floor of 46 Murray Street, this city, for the display of cut glassware and decorated wares. Their new patterns of cut glassware and decorated lamps are exceptionally novel and attractive.

H. H. Heinrich, of 102 Fulton Street, a few weeks ago stepped on an orage peel at the corner of Fulton and Nassau Streets, and fell, breaking his leg.

Louis Lassner, of Lassner & Nordlinger, 68 Nassau Street, New York, died recently of Bright's disease at the Mount Sinai hospital in this city.

Hoagland & Co. have moved from 17 to 14 John Street.

William H. Ball & Co. have moved into their new quarters at 14 John Street.

Ludwig Nissen has been elected president of the Manufacturers' Association of New York.

Arthur Reymond has retired from the firm of Reymond & Gottlob, manufacturers of aluminum goods. The business will be continued under the same name by William Gottlob, who has assumed all liabilities.

The Woodside Sterling Company, of 11 John Street, has taken the offices formerly occupied by Unger Brothers, thus doubling the floor space.

The trade in this city learned with deep regret of the sudden death, at Philadelphia, of Lucien Sussfeld, son of Louis Sussfeld, senior member of the firm of Sussfeld, Lorsch & Co., of Paris and New York. The first announcement came in the form of a telegram from the undertaker, in whose care the remains had been placed. Later information showed that Mr. Sussfeld had been taken suddenly ill and had gone to a doctor's office, where he was overcome with convulsions, ending in death. His brother, Edward Sussfeld, and Henry Lorsch, of the firm, in this city, immediately proceeded to Philadelphia and arranged for the transfer of the remains to Paris, where interment will be made. Deceased was in his twenty-fourth year and apparently in good health. He was a man of fine physical appearance, with a charming personality that won him a host of friends in this country as it had at home. He made semi-annual trips to this side, representing what is known as the "special" department of the Paris house, and was on a business trip at the time of his death. The offices of the firm in this city were closed while the remains were in this country. The cablegrams and telegrams of regret received represented all parts of Europe and this country, and the expressions of sorrow expressed by the attaches of the house here were most profound.

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## The Jewelers' Security Alliance.

The regular monthly meeting of the executive committee was held in New York on April 8th, the following members being present: Chairman H. H. Butts, President J. B. Bowden, Treasurer B. Karsch, Secretary J. H. Noyes, and Messrs. David Untermeyer, A. K. Sloan, Henry Abbott and William H. Ball.

New members were admitted as follows:

| | |
|---|---|
| Greiger & Caesar, | Port Henry, N. Y. |
| Reuben H. Gulvin, | Geneva, N. Y. |
| Enos E. Penny, | Springfield, Mass. |
| S. Beck Jewelry Co., | Dallas, Texas. |
| Charles Hairhouse, | Hackettstown, N. J. |
| M. Myers, | Boston, Mass. |
| Harris & Lawton, | Boston, Mass. |
| Haynes Brothers, | Newark, Ohio. |
| Arthur E. Paegel, | Minneapolis, Minn. |
| Olin V. Neal, | Parkersburg, W. Va. |
| Ernest F. Welch, | Northborough, Mass. |
| W. D. Godfrey, | South Omaha, Neb. |
| Isaac R. Prindle, | Great Barrington, Mass. |

The executive committee has recently issued a circular showing the record of the Alliance from the beginning, in which they feel much satisfaction, as it presents a story of continuous success which is seldom equaled among such organizations.

Although the membership has grown from 375 to 1500 and over, there are fewer burglaries among those who are protected by the certificate than during the first years, no one having been robbed since December, 1896.

If any jeweler has been neglecting to join from doubt about the efficiency of the Alliance, let him send for one of these circulars, and he cannot fail to be convinced.

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## A Correction.

ED. KEYSTONE: PEORIA, ILL., April 14, 1898.

I wish to correct a mistake which occurred in your April issue, in which it is stated that Mrs. Bradley purchased and brought to Peoria some time ago the Parsons' Horological Institute, of La Porte, Ind. This is a mistake, and probably occurred through another mistake of some months ago. The school was a stock company, and incorporated as such in April, 1892, and remained so until July, 1897, when it was turned over to a board of directors of the Bradley Polytechnic Institute, and is now known as the Horological Department of the Bradley Institute.

Some of our friends have wondered why we gave up the name of the Parsons' Institute. It was because we felt that in this way we could better serve the public than to run the school single-handed and alone; and right here let me state that no interest in the welfare of the school has been lost, by myself or Mrs. Parsons, and everything will be done to make it the best in the world.

Yours truly, J. R. PARSONS.

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## A Perfect Journal.

THE KEYSTONE: Enclosed find one dollar for one year's subscription. THE KEYSTONE is a perfect journal, displaying the most "fine art" printing, and containing the best information that any watchmaker or jeweler could ask for; and the only suggestion I can make is this: Every watchmaker and jeweler in the world subscribe and help the good cause along. A true American, who, by chance or otherwise, is away off in a foreign country, is always happy and his whole heart goes out in patriotism when he sees the Stars and Stripes; so also should every jeweler who is so isolated from the trade without THE KEYSTONE, send in his dollar and be loyal to the "old reliable banner of his business"—THE KEYSTONE.

M. L. KREAMER, Ossian, Iowa.

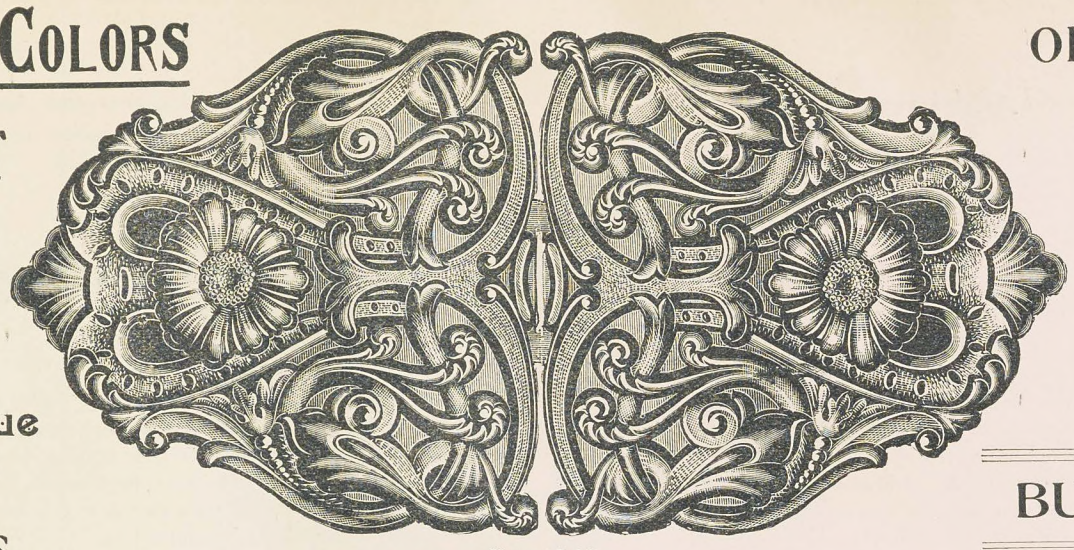
# SHOW YOUR COLORS

OUR **SASH BELT**
IN
UNITED STATES
AND
CUBAN
COLORS

**Red, White and Blue**

MOUNTED ON ONE OF OUR
STERLING SILVER
**U.S. NAVY BUCKLES**

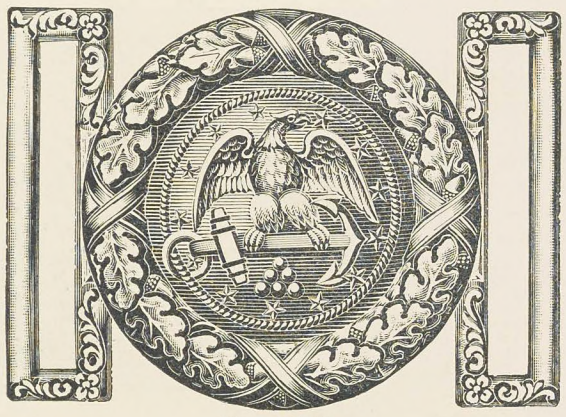
IS THE PROPER THING
IN THESE
WAR
TIMES



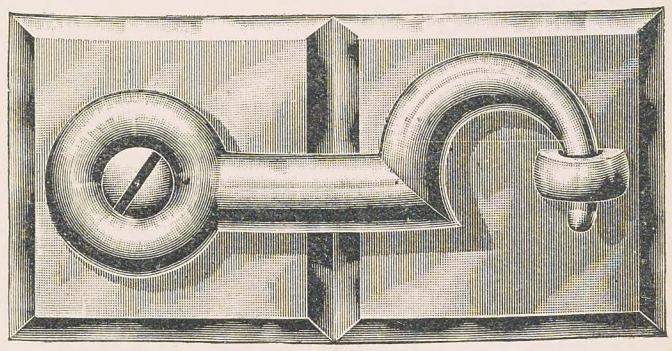
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OPERA GLASS
AND
HANDKERCHIEF
**BAGS**
TO MATCH
**BELTS**

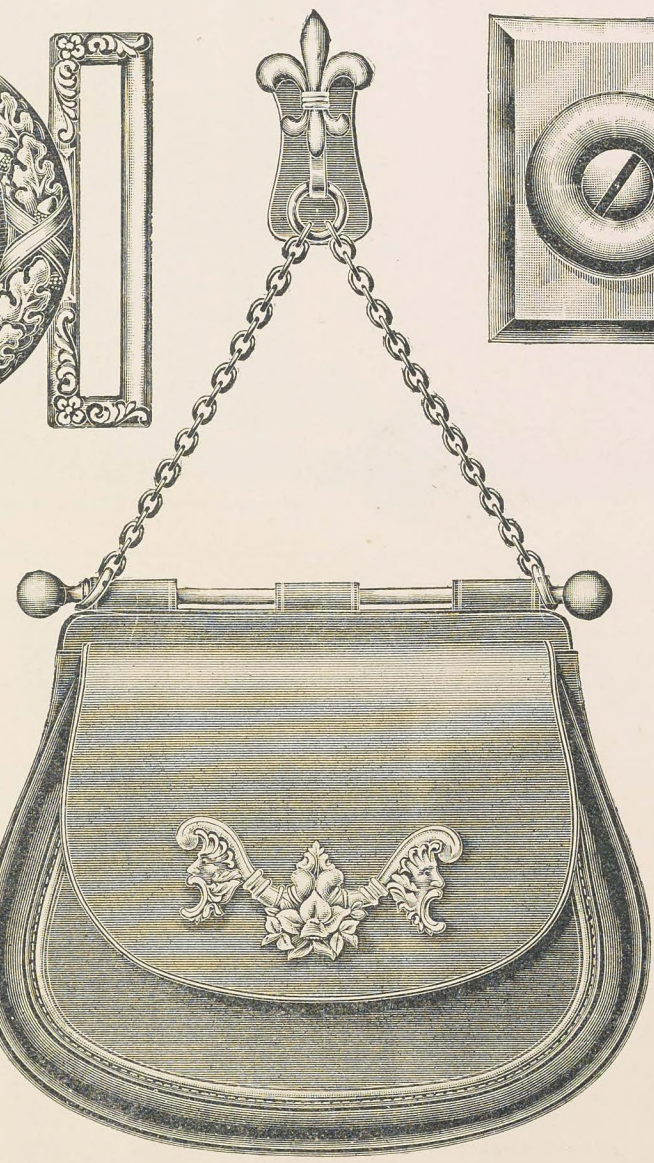
BUCKLES 925/1000 FINE



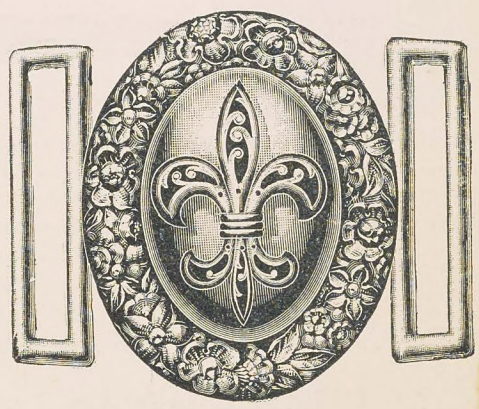
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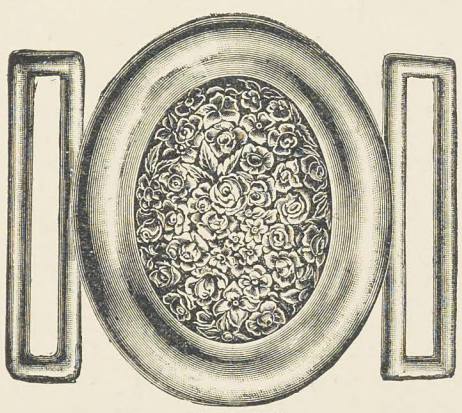
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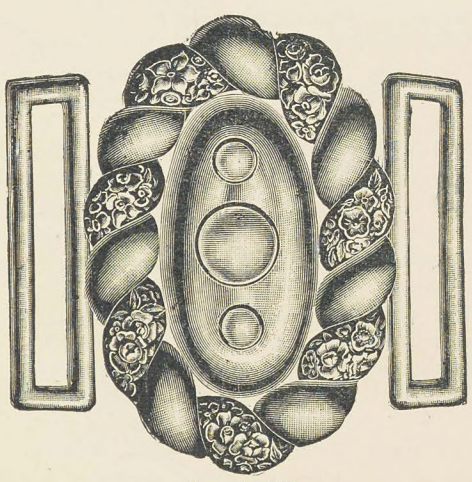
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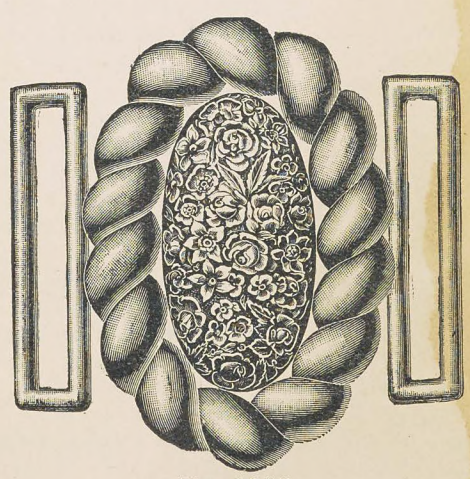
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ENAMELED



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No. 4009



No. 4040

# SIMONS, BRO. & CO.

Silversmiths, Thimble Makers
and Manufacturing Jewelers

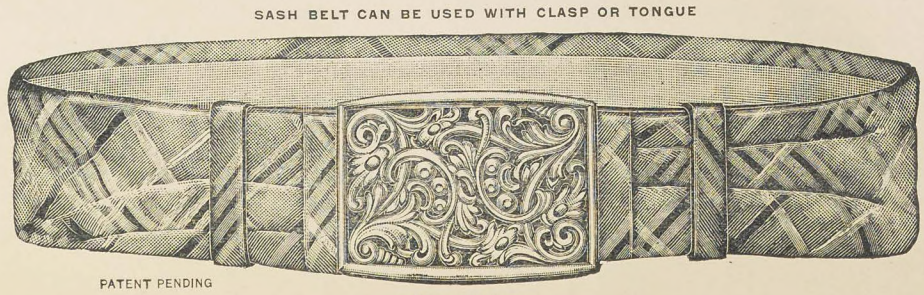
PHILADELPHIA
616 CHESTNUT STREET

NEW YORK
19 Maiden Lane
41 Union Square

CHICAGO
402 Columbus
Building

SAN FRANCISCO

SASH BELT CAN BE USED WITH CLASP OR TONGUE



PATENT PENDING

No. 4015

**FINISHES**

POLISHED
ROMAN GILT
ROSE GILT
OXIDIZED

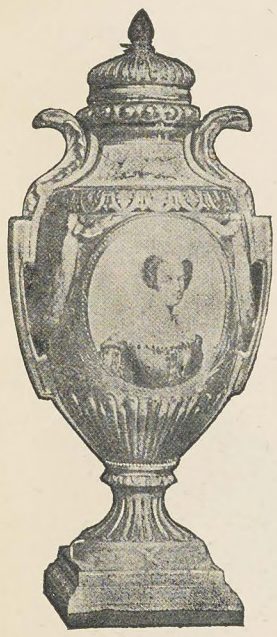
BELTS ARE MADE IN
ALL COLORS

**SILKS, VELVETS AND LEATHERS**

WRITE FOR DESCRIPTIVE
CIRCULAR, COLOR CARD
AND PRICE-LIST.

## New Goods and Inventions.

[The illustration and description of new goods and inventions as hereunder is a *permanent* feature of THE KEYSTONE, our twofold object being to keep the *merchant* jeweler thoroughly posted on the very latest and most salable goods, and the *practical* jeweler equally well posted on the newest inventions and improvements in tools and appliances used at the bench. For the benefit of the optician, we also illustrate and describe new optical goods and instruments in this department.]



### A New Pattern of Sevres Ware.

This illustration shows a representative pattern from an extensive line shown by Harris & Harrington, 34 Vesey Street, New York. These goods are designed and controlled by the above firm, and mark a departure in shapes and decoration in Sevres ware as adapted to modern mercantile demands. Decorations are largely in form of heads and groups copied from the works of famous painters by the most skillful Parisian artists. Though these goods have the most expensive richness of tone and artistic effect the prices are such as will enable the trade to benefit by their fascination for the public.

### The Ladies' Beauty Pin.

Among the new things of assured saleability is the "Ladies' Beauty Pin" which is being furnished to the trade by T. Floersheim, Kunstadter & Co., of Chicago. This pin is used to pin the cuffs, collarettes, shirt-waists, etc., and is very effective for the purpose besides being very prettily designed. It is practical, handsome and adaptable, and fills a very general feminine want.

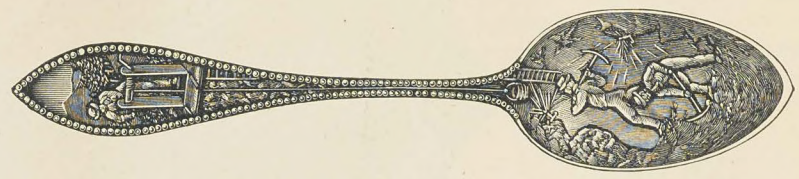
### A Maine Souvenir Spoon.




The destruction of the Maine has been a fruitful source of inspiration for souvenir designs. One of the prettiest and most appropos of these is the Maine souvenir coffee spoon designed and made by the Souvenir Company, 3 Maiden Lane, New York. The bowl shows the wreck of the big ship with the American Eagle hovering over it in the act of screaming. The handle is a cannon, on which Uncle Sam is shown in the act of giving President McKinley $50,000,000 for defense. The spoon is of the genuine saleable variety.

### A Mining Souvenir Spoon.

A well-designed and prettily executed souvenir spoon that should prove very saleable in all mining localities is shown in our illustration. The design shows the miner at the

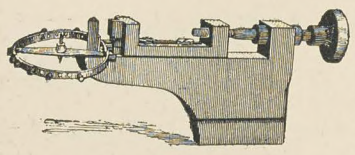


windlass, and the hillside with its growth of pine behind him and the sky above, the ladder commencing at the platform and re-appearing below; the bucket being hoisted, and the "pardners" working in the shaft. A cable running down the back of the Montana spoon forms the word "Montana." The spoon for the trade in other States shows on the back mining tools only. This spoon was designed and is manufactured by Hight & Fairfield, Butte, Montana, and reflects credit on the firm.

### New Military Buckle.




Fashion's latest edict is *a la militaire*, and the manufacturers are even now ready with military designs. Our illustration shows an army buckle made by Codding & Heilborn, North Attleboro, Mass. The die is finely cut, and is an exact representation of an army officer's belt buckle. These buckles are certain to be popular, and will be worn largely this summer on silk, velvet and leather. They are also made in oxidized silver, which, although not military, is very effective. J. T. Scott & Co., New York City, are also offering a new line of naval as well as military belts.



### Balance-Truing Device.

This cut illustrates a new balance-truing device, the invention of Mr. Abel, of Abel & McFarland, the makers, Delhi, N. Y. This new device is simple in operation, and is claimed to be a time-saver, important factors in watchmakers' tools.

## Philadelphia Notes.

The war excitement is boiling in this patriotic city, and the mustering and departure of several regiments have not been conducive to business. But the prevalent enthusiasm is an effective counteragent to depression, and the people await hopefully the first shout of victory.

The wave of patriotism that has swept over the city recalls the stirring times of '61–'64, and the miniature flags and novelties offered have found a ready sale. The stock of large flags was depleted with a rush, and the dealers are unable to obtain but a small per cent. of the amount needed to supply the demand.

B. Frank Sutton, a prominent jeweler of Camden, N. J., died suddenly at his home last month. He was one of the best-known jewelers in Camden, having been in business for forty years at 410 Federal Street. Among the jewelers who attended the funeral services were: L. A. Scherr, Thomas Moore, Wm. Williams, Harry Schimpf and B. F. Williams. L. A. Scherr & Co. sent a floral design. Charles E. Sutton, son of the deceased, will continue the business at the same stand.

The Easter windows of J. E. Caldwell & Co. elicited exclamations of admiration from the passing crowds. The west window was devoted to precious-stone jewelry of rare elegance, in which diamonds and pearls predominated. There were brooches in the forms of butterflies and other creatures of the animate world, altogether of diamonds; pearls and diamonds in graceful scroll and spray effects, superb finger rings, etc. In the east window there were groupings of rich silverware, ewers, vases, bowls, platters, and other pieces all in beautiful and new designs. Towering above the silverware was a beautiful statue, "Morning Glory," one of the treasures of the Caldwell Galleries. The richness of the goods emphasized the splendor of the display.

The latest social function of the Philadelphia Jewelers' Club was a shad dinner at Essington. Over fifty plates were laid, and among the guests were members of the trade from many distant points.

George D. Hood, who, for over a score of years, had been a salesman in the employ of Louis A. Scherr & Co., 726 Chestnut Street, died recently of heart disease. He was prostrated while on his way to the office, and died a few minutes later at his employers' store. Mr. Hood, who resided at 607 North Second Street, Camden, was sixty-one years of age and highly respected. The funeral was largely attended by the trade. The firm with which Mr. Hood had been connected for so many years sent a handsome floral tribute. His co-workers sent a high bank of roses and Easter lilies.

Wall & Ochs, opticians, are erecting a handsome new building at 1716 Chestnut Street, into which they will move as soon as it is completed.

At a recent meeting of the Photographic Society of Philadelphia, Edward Bausch, of the Bausch & Lomb Optical Co., Rochester, N. Y., delivered an instructive discourse on lenses.

State Senator George Handy Smith, of this city, who died recently, was formerly a silversmith and diamond setter. He was for more than twenty years a Senator of the State of Pennsylvania.

Mead & Robbins designed and furnished 122 prize cups for the University of Pennsylvania relay races, which were held last month. The designs were very beautiful and much admired.

The sub-committee of the Committee of the Public Building Commission, appointed to collect data concerning town clocks in reference to the timepiece for the City Hall tower, recently visited Milwaukee, Minneapolis and Chicago, and, it is said, will soon recommend the adoption of a compressed air timepiece, such as is used in the courthouse in Minneapolis.

James D. Hughes, of L. A. Scherr & Co., has moved into the city from Millmont, Delaware County, where he has been residing for some time.

On the evening of April 21st the Melpomere Dramatic Co. presented the comedy "David Garrick," in Mercantile Hall. The production was under the management of Chas. J. Conrad, who also took the part of Garrick, and displayed an abundance both of dramatic talent and managerial ability. Mr. Conrad is a son of Jeweler C. L. Conrad, of 1405 North Second Street. The leading feminine character was effectively portrayed by Miss Anna R. Beath, daughter of Jeweler Beath, of Twelfth and Walnut Streets.

William P. Sackett, manager of Wanamaker's jewelry department, secured the Government contract and furnished the monitors Miantonomah, Nahant, Manhattan, Canonicus and Mahopac, which were recently stationed at the League Island Navy-yard, with silver-plated ware for the officers' and seamen's mess. The contract was a large one. It is said that Mr. Sackett has secured another large Government contract for similar ware. The diamond department has recently been packed with crowds that stand enchanted with a magnificent display of precious stones, which Mr. Sackett has been collecting for months past. The feature of the display is an American flag made up of rubies, diamonds and sapphires. The collection contains a number of rare stones representing a fabulous sum.

### Analyze Your Chances.

"In taking chances first see they are not against you." All future transactions should be carefully considered, so that possibility of failure may be reduced to a minimum. A little thought at precisely the right moment and the exercise of cool judgment often means the difference between success and failure—between sunshine and gloom. Look ahead. Balance chances. Learn to take advantage of every little eddy and current in the business stream, and you will find yourself at last floating in the smooth waters of prosperity.

Stewart Building, Chicago



IN our new location at the Northwest Corner of State and Washington Streets, where we occupy the entire third floor of the new Stewart Building, we are well prepared to receive our old friends and patrons and make new ones.

Our reputation, through the past forty-four years of business in Chicago, has proven an all-sufficient introduction to thousands of jewelers for a kind consideration of our various lines. It has also operated as a superlative inducement for us to continually seek and adopt the most improved methods in manufacturing.

As a result we have to-day the largest and most modern factory west of the Alleghanies for the manufacture of fine jewelry and special order work for the trade. We are also direct importers of diamonds and other precious stones, and carry the largest line in this market. Give us a trial order in any of the above lines—let our methods, goods and prices prove what we say.

# Juergens & Andersen Company

**DIAMOND IMPORTERS**
**MAKERS OF**
**FINE JEWELRY**

## Chicago

Established in the year 1854.
Incorporated in 1893.

# Among the Trade.

*The trade are invited to send us reliable items of news for this department.*

**Alabama.**

C. F. Cross, at Gadsden, turned over the entire business of his jewelry store, on April 9th, to the ladies of the Methodist Church, the entire day's profit going to the church fund to apply on the debt.

J. Wood, of Attalla, has moved into new quarters.

Henry Robinson, of Anniston, has sold his business to J. H. Bates, of Marietta, Georgia.

The Alabama Jewelry Company has opened a branch store in Dothan.

**Arizona.**

A. W. Crawford, formerly of Chicago, has become a partner of George A. Cook, of Phoenix, this State. Mr. Crawford will have charge of the store in Phoenix, while Mr. Cook will conduct that in Prescott.

**California.**

F. W. Carter has opened a store in Santa Rosa.

J. H. Hall, watchmaker and repairer for E. A. Walker, of Pasadena, has been appointed official watch inspector for the Southern Pacific Railroad Company at Passadena.

G. G. Daunt, formerly of Modesto, will open a jewelry store at Petaluma.

D. E. Hardy, of San Francisco, has opened a store in Placerville.

**Colorado.**

A. F. Wehrle Co., Denver, moved last month to the handsome new store fitted up for them at 921 Sixteenth Street.

J. S. Bentley & Co. have started in business in Boulder.

Randall & Robertson, of Colorado Springs, have dissolved partnership and have been succeeded by Randall & Co.

Jeweler Ashby, Colorado Springs, has removed to the bank building, 12 North Tejon Street.

Harry Davis has recently succeeded to the business of F. C. Helt, at Trinidad. Mr. Helt is on the lookout for a new location.

Fred. T. Briggs, of Pueblo, has moved to 309 North Main Street.

**Connecticut.**

George H. Snow has begun business in Wallingford.

A. Vanderwerken, of Stamford, has moved into new quarters across the street, and has added bicycles and bicycle sundries to his stock.

Ryan, Parker & Co., Danbury, have added a bicycle repair shop to their plant.

W. Luther La Rue & Co., New London, have dissolved partnership. Mr. La Rue will continue the business.

H. C. Goodwin, of New Haven, has redecorated and greatly improved his store.

Henry C. Bridgham, of Mystic, has moved into more desirable quarters.

Paddock & Ulrichs have opened a store at 404 Main Street, Bridgeport.

E. L. Glouskin, of New Haven, has moved into an attractive new store.

J. H. G. Durant, of New Haven. has leased a more attractive store near the corner of Church and Center Streets.

**Georgia.**

Cotney, Bell & Co., of Americus, have been succeeded by the People's Jewelry, Musical and Optical Company, Incorporated. James T. Cotney is the president, Thomas S. Bell the vice-president, and Luther C. Bell the secretary and treasurer. Thomas L. Bell will have charge of the company's optical department.

J. E. Cochran, lately of Hamilton, has begun business as a repairer in Tipton.

Charles F. Root, formerly with G. R. Youmans, has begun business in Waycross.

R. B. Jones has begun business as a repairer in Monticello.

**Illinois.**

H. T. Thompson, Buda, has been succeeded by G. B. Jenison.

E. B. Curtis, late of Lemont, recently purchased the jewelry and music business of C. M. Spring, of Beardstown, and is continuing same with an increased stock. Mr. Curtis is an accomplished watchmaker and optician.

Jeweler C. I. Josephson, of Moline, reports an unusually fine spring trade. As an evidence of same he has recently purchased his store building.

D. F. Sullivan, of Rockford, has been appointed watch inspector for the Chicago and Northwestern and the Chicago, Milwaukee and St. Paul Railways.

**Iowa.**

D. M. Dillon, Prairie City, is erecting a building into which he will transfer his jewelry business, in conjunction with which he will run a photographic gallery.

C. A. Cole, of Winterset, will erect a brick building, into which he will move his jewelry business.

George P. Mohr has opened a store in Victor.

C. E. Ashton has opened a store in Allison.

Brobst & McClymond have opened a book and jewelry store in Knoxville.

Curl & Schlampp, repairers, of 210 Sixth Avenue, Des Moines, have dissolved partnership. The business will be continued by Frank Schlampp.

F. Koeckritz has purchased the business of D. P. Johnson, Jr., Muscatine.

Jules Renaud & Son, Keokuk, would like information of the following goods, stolen from their store: One 6-size hunting, stem-wind, 14 K., solid gold case, plain polished, with fancy diagonal band of raised colored gold across front and back, with one diamond set in star. No. 17,453. Movement in this case Elgin, fifteen-jeweled gilt, No. 6,223,813. Also, one 6-size, key wind, 18 K. case, engraved all over, with Swiss lever movement. Also, one o-size hunting, full engraved, No. 546,917, with Waltham movement, No. 6,511,695. Also, one hunting case, 14 K. solid gold, very small case, called the No. 400, full engraved, with eleven-jeweled Hampden movement; number of case, 97,244, and of movement, 1,064,662.

C. D. McElvaine, of Red Oak, has recently moved into a handsome new store. He has added books and stationery to his stock, as well as an up-to-date optical department.

Mrs. T. Kircher, of Davenport, will occupy her new store the first of the present month. Its location is said to be the best in town, and is certainly prominent and central. Travelers who have looked it through just before the opening day are warm in its praises. They speak of it as a beautiful establishment—a royal store—one that will compare favorably with the big stores in the larger cities. Fine taste has been displayed in its arrangement, and no expense has been spared in fitting it up. Mrs. Kircher is to be congratulated upon her new establishment, which is so much of a credit to her enterprise and to the city of Davenport.

Stark & Rouser, of Davenport, contemplate extensive improvements in their store within the present month.

M. E. Nabstedt & Sons, of Davenport, have put in a new front and otherwise improved the appearance of their store by making alterations. New stores, improvements and alterations are the order of the day among Davenport jewelers, and Messrs. Nabstedt are determined not to be the last in the procession.

C. D. Couse, formerly of Waverly, is now located at Ackley.

The T. K. Smith jewelry house, of Oskaloosa, have recently made extensive improvements in their store by putting in new fixtures entire, and otherwise beautifying their store. Travelers who have recently visited them tell us that they have a mighty pretty jewelry establishment.

Culbertson & Harper have bought out the jewelry business formerly conducted by T. D. Mears, at Greenfield.

R. J. Kewin has succeeded J. M. Tinsley, of Griswold.

H. H. Therlby, of Creston, has recently moved into a new store.

Jeweler J. B. Schnauber, of Creston, who was burned out a few months ago, is now occupying a new store in the Summit House Block.

S. A. Asquith & Bro., of Waterloo, are nicely located in their new store, in which they take much pardonable pride. Their history in trade is an interesting one. Something over three years ago these young men began in the jewelry business with an eight-foot show-case in a clothing store in Waterloo. To-day they have as large a stock displayed in as fine a store as one would find in any town of their class in Iowa, or any other State, for that matter. They are fine workmen, are industrious and attentive to business, and do a prosperous trade in the jewelry, music and optical line. THE KEYSTONE congratulates them on their success.

**Indiana.**

E. E. Newton, of Chicago, has opened a store in Bloomington, this State.

E. S. Stephens, lately of Clinton, has accepted a position as watchmaker and engraver with J. M. Bigwood, of Terre Haute.

**Kansas.**

J. F. Varney has opened a store at 133 North Main Street, Wichita.

Joseph F. Brock has begun business in Girard.

B. H. Beatte, the popular jeweler, of Sterling, is acknowledged as the champion "Jiner" of secret organizations in his town. At one time he has been a member of fifteen distinctive orders, but now affiliates with only six: Blue Lodge, Chapter, Knights Templar and Shrine—Masonic orders—and the Ancient Order of United Workmen. Harry says the boys used to tell him that were he as good a carpenter as joiner, he would be a master of the art.

James A. Sharp, Leavenworth, will remodel and enlarge his store.

I. E. Dwelle has bought out the jewelry business of J C. Johnson, at Independence, and will continue it at the old stand.

**Kentucky.**

Charles G. Berry has started in business at Elkton.

Charles Kincheloe, of Carrollton, has moved into larger quarters and has added musical instruments to his stock.

**Louisiana.**

N. O. Bourque, Abbeville, writes to THE KEYSTONE, urging the necessity of organization among the trade of his State, that they may be better able to protect themselves against the ruinous competition of department stores, incompetent workmen and fake jewelry. He believes that a law protective of the trade could be drawn up and passed in the State Legislature, if the jewelers would get together, and to that end he would like to hear from all jewelers in the State who favor the formation of an organization.

**Maine.**

Arthur Macomber has entered into partnership with his father, S. K. Macomber, in Rockland.

Samuel Adams, of Belfast, has renovated and greatly improved his store.

**Massachusetts.**

Norman Ransford, of Greylock, has opened a branch store in Williamstown.

John C. McAllister, of Whitinsville, has moved into the quarters which he formerly occupied.

Ernest A. Kinley will open a store in Lawrence.

I. O. Converse, of Fitchburg, has sold his business to W. E. Wilder, formerly a clerk for C. E. Webber.

S. G. Beers, of Taunton, has greatly improved his store.

Hector Mondor, Holyoke, has rented another store on High Street.

John A. Coville, formerly of the American Waltham Watch Co., Waltham, has been appointed inspector of the watches and clocks on the Boston and Maine Railroad.

E. M. Dean has opened a store in Springfield.

Edward L. Houghton has opened a jewelry and optical store in Webster.

M. F. Robinson, Springfield, made a business trip to New York City last month.

Howard N. Carey, of Bangor, Me., has begun business as a retail jeweler and optician in New Bedford, this State.

Walter J. Mayerson, of Springfield, has begun business in Haverhill.

John O. Holden, of Quincy, will move into larger quarters.

**Michigan.**

Treeby W. Jennings, the promising nineteen-year-old son of Max Jennings, St. Clair, died recently. He graduated from the High School in June last, and had recently completed a course in optics at the Detroit Optical Institute, preparatory to taking charge of that branch of his father's business. THE KEYSTONE joins the friends of the bereaved parents in extending sympathy.

S. T. Van Dusen has opened a store in Owosso.

Jeweler Herman Hiss, of Herman Hiss & Co., Bay City, is feeling quite proud of late over the arrival of a young son and heir at his home. The young jeweler, who has already been admitted into the firm, was installed as buyer, April 15th.

Bert Carey has purchased the business of Charles Carey, of Montrose.

J. E. Zutt, of Springport, has moved into a larger store.

F. H. Barnum & Co., of Ypsilanti, have dissolved partnership.

William S. Kernel, formerly with Hugh Connolly, Detroit, has opened a store in Wyandotte, a suburb of that city.

Roehm & Sons expect to move into their new quarters at 184 and 186 Woodward Avenue, Detroit, early next month.

(*Continued on page 370.*)

# Again Speaking of Railroad Watches

Bloomington, Ill., April 18, 1898.

## ILLINOIS WATCH CO.,

**Springfield, Ill.**

Gentlemen: In reply to yours of the 16th, would say you will find the following a complete list of watches now in use in the time service of the Chicago and Alton Railway Company (Illinois Division).

Your **21 Jeweled BUNN=SPECIAL** and **17 Jeweled BUNN** watches are rating closer and giving better satisfaction than any other watch used on this system.

| | |
|---|---|
| **ILLINOIS** | **174** |
| Hampden | 167 |
| Elgin | 160 |
| Waltham | 101 |
| Rockford | 27 |
| Columbus | 19 |
| Howard | 15 |
| Aurora | 14 |
| Swiss | 13 |
| Hamilton | 8 |
| Seth Thomas | 2 |
| Fredonia | 2 |
| Non-Magnetic | 1 |
| Ball | 1 |

Yours truly,

(Signed) E. K. CROTHERS,

Chief Watch Inspector of Chicago and Alton Railway Company.

## Clocks.

CXXVI.

### So-called Gravity Escapements Considered.

WE can not do better than to say at the outset to our readers that there is really very little literature on the subject of gravity escapements, except to deal with them theoretically. Saunier, in his Modern Horology, gives only one drawing of a gravity escapement, which is Denison's single three-legged gravity escapement. Britten, in his Hand-Book, shows four—Denison's double three-legged; a single three-legged, by Dr. Waldon and Prof. Lyman; a four-legged Denison; and a double three-legged gravity escapement, by Thwaite and Reed. This last-named is a modification of Denison's escapement, but only gives an impulse in one direction of the pendulum, and, consequently, is not adapted for a clock showing seconds, except with a short pendulum beating half seconds.

It is not to be understood that there are no other forms of gravity escapements, because there have been many invented and constructed; but until Mr. Denison perfected the one for the clock on the British House of Parliament these escapements were considered unreliable and subject to trip. The gravity escapement as applied to precision clocks is, as we may say, still in the experimental stage and but few manufacturing concerns are making them. There are many other sources of error in precision clocks which are more worthy of elimination than the slight variation of propelling power to be found in trains of clocks produced by perfected modern machinery. We shall deal with such errors before the closing of this series of articles, but for the present we can only refer to them as being important factors in the problem of accurate timekeeping.

**The Denison Gravity Escapement**

We shall commence the consideration of the gravity escapement, practically applied, by describing the double three-legged escapement devised by E. B. Denison, as already stated, for the Victoria Tower on the House of Parliament. In none of the text-books which have come to our notice has the practical making of an escapement of this kind been dealt with. General principles and a few suggestions as to making certain parts as light as possible and of tempered steel are suggested, but as to size and dimensions of the parts no drawings to scale, or even specifications giving sizes of parts, have ever, to our knowledge, been given to the trade. Consequently we are forced to the necessity of getting up such working drawings and establishing a basis to construct from.

All mechanical matters admit of mathematical calculation, and on such calculations we must base our labors. In all clocks controlled by the vibrations of a pendulum we must first provide power for maintaining such vibrations. Such power is always furnished in excess, to make up for imperfections in the train of wheels which convey the power of the weight to the escape-wheel. It is usual in precision clocks to store this excess of power in the pendulum ball. Such policy, although the best so far devised, is open to numerous objections, which we will not stop to consider at present. We make brief reference to the matter here, from the fact that in dealing with clocks controlled by a gravity escapement we do not have to store any excess of power in the pendulum, because the driving power, as applied to the pendulum, is constant.

We might briefly, at this point, remark that the problem of perfected precision clocks can by no means be considered as settled, and the present is an excellent opportunity to give brief consideration to one of the knotty points, to wit: The proper weight for a pendulum ball.

**Correct Weight for a Pendulum Ball**

There is no just reason why a pendulum ball weighing one ounce should not, if properly suspended, give as accurate vibrations as one weighing 500 pounds. As far as our experience goes, the only advantage pertaining to the heavy ball is, as already shown, to compensate for irregularity in the propelling power. With the gravity escapement such compensation does not have to be made. In constructing a gravity escapement we have but little practical details to to work from, but, as suggested above, we must call in our own good judgment, aided by mathematics, to help us out.

We have no tables showing us how much mechanical force is required to maintain in vibration a pendulum and ball which, for illustration, we will assume to weigh fifteen pounds and moving through an arc of 2°, but in our next article we shall give the rules by which a close approximation can be arrived at. Now if we allow one-half of such power to be expended in the friction of the train we will probably be not far out of the way, even when we are dealing with a train of the best construction. Hence, in making our gravity escapement we should calculate and construct the parts so as to give about this amount of force in grains weight at each impulse.

In addition to this we will, in devising our working plans, arrange to modify the impulse, as applied to the pendulum, fully one-half either above or below the actual force which our arithmetical calculations indicate as being required. Such an arrangement also affords ample scope for experimenting with the pendulums with different weights of ball, and also thickness of suspension spring. The great object in using a rather thick suspension spring with a pendulum propelled by a gravity escapement is to annul the influence of street vibration caused by the jar of traffic. In astronomical observatories there is but very little such disturbance, but in large cities and towns this matter is one of great importance, and no matter how carefully we try to exclude such influences it will be felt. Solid piers of masonry sunk deep in the earth will not be entirely free from disturbance by a passing train or even a heavy omnibus driven rapidly by.

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*"Enclosed find one dollar. I would not be without The Keystone under any consideration. She is a dandy."*
*—Stephen Swart, jeweler, West Bay City, Mich.*

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### An Improvement in Clocks.

We have received additional information in regard to improvements in equalizing the performance of spring clocks, described in February KEYSTONE. James Schulte, of Monterey, Cal., writes as follows: "Eight-day marine or lever clocks would be most desirable timepieces, but for the reason that their variation is so great as in all instances to make them useless. My automatic regulator overcomes all variation of time, and any movement of one, eight or thirty days, or a longer period, by applying the use of my invention, becomes a perfect timepiece in every sense of the term and at a nominal cost, not exceeding two to three cents per clock. The universal trouble existing with pendulum clocks is, if the least part out of plumb, they refuse to run regularly, and, in many instances, do not run at all. It matters not what the motive power may be, or how many degrees a pendulum clock may be out of plumb, my automatic beater will require the movement to keep perfect beat, it being so constructed that the entire escapement mechanism is caused to move automatically, is self-adjusting, and always finds the center of gravity; the expense in applying the beater to clock movements is, as in the case of attaching the regulator, a mere trifle, not costing more than two to three cents per clock. When spring motive power is used in pendulum clocks the flexible cam may be used in addition to the beater, hence insuring not only accurate time but perfect beat in conjunction. Pendulum clocks are often set by spirit levels, and yet they refuse to operate by reason that the rod is sprung or the movement is not properly stationed in the clock case. These latter imperfections are overcome the same as a clock out of plumb, by the use of the automatic beater, which swings on a pivot, taking its center from the center of the escapement wheel."

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### Rockefeller's First Ledger.

Not long since, John D. Rockefeller told how he used to sleep under the roof, where he could hear the rain and through which he could see the sky.

"I had a hard struggle to get a foothold," he said. "As a boy just out of school, I found myself looking for a situation early in life. I walked all over town in an attempt to find something to do. I visited every railroad office, every store, and, in fact, every place in the city where I thought I could find emyloyment. Every where I met with discouragement, until I found one man, God bless him, who took me into his office and gave me work, and that man was H. B. Tuttle. That was the beginning, and a few years later I started a little business of my own with a partner. In a short time came a crisis in our affairs, and it was necessary for our young firm, which was beginning to branch out, to raise more money. I remembered my friends and acquaintances, and called on them, one after another. Many expressed the most profound interest in our firm, but that's all.

"Just at this critical moment I bethought me to try the bankers, and I finally visited the office of a dear friend of mine—I mean Mr. T. P. Handy. He asked me how I proposed to conduct my business and how much money I wanted. Gentlemen, it was an enormous sum, and I scarcely dared to name it to him; it was two thousand dollars. 'All right, Mr. Rockefeller, you can have the money,' said Mr. Handy; and, as I went out of that bank, full of hope, I stood up straight and erect, as I then considered myself one of the business men of Cleveland, you know." He then read from a little yellow-covered book, which was his ledger in boyhood. "I place great value on this little book," he said. "I have not seen it before for twenty-five years, but you could not buy it for all the modern ledgers in New York and what they would bring in. It reports what I received and paid out for several years. Here is an item: 'Income from December 26, 1855, to January 26, 1856, $50'; and I lived within my income. Out of that I paid my washerwoman, my board, and saved a little and put it away. I see that I paid in the Sunday-school one cent, which was all I could afford. I was as independent in those days as Mr. Astor. I remember the clothes I bought—not fashionable, but cheap and good.

"My clothing, from November, 1855, to November, 1856, cost me just nine dollars and nine cents. Here are some bits of extravagance which had escaped my memory: 'One pair of gloves, $2; mittens, three shillings; gave away $5.58; missionary cause, November 25th, 15 cents; ministerial student, 10 cents; night society, 75 cents; Sabbath-school, 5 cents; present to Sunday-school superintendent, 25 cents.' I was living in Cleveland then; I must have felt sorry for New York, for here is an item, 'Five Points Mission, twelve cents.'

"All these little things helped me to get into sympathy with many undertakings, both religious and philanthropic. My opinion is that no man can trust himself to wait until he is charitable; he must give away some money continually."

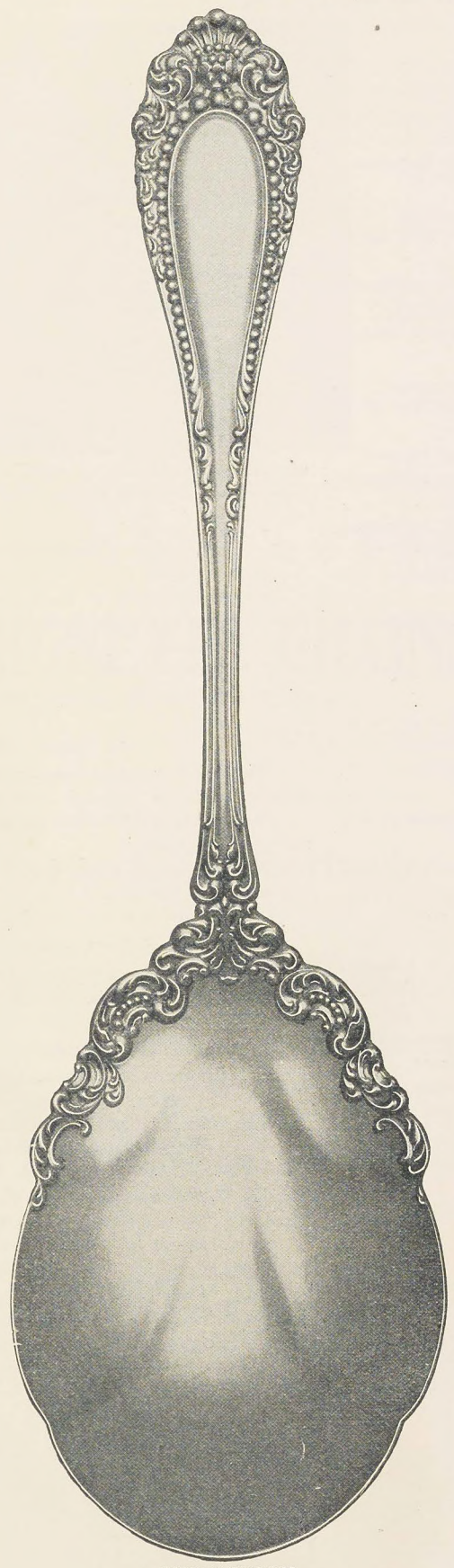
"Get all the money you can; get it fairly and justly, and then give away all you can."

This man, whose clothes cost him nine dollars a year, has given $7,000,000 to Chicago University, and his other charities are so large that he employs a man on a large salary to look after them.

"What is success?" asks Mr. Rockefeller. "It is to get money? is that success? Who is the poorest man in the world to-day? The poorest man I know is the man who has nothing but money, nothing else in the world but money—only money."

Money alone will not bring happiness. The respect of our fellowmen and the consciousness of right doing are essentials to a life that can be called successful.

# The "Virginia"



BERRY SPOON.

## Our Leader for the Spring of 1898.

This pattern will be made in the following pieces only:

| | |
|---|---|
| Berry Spoon, | Cucumber Server, |
| Salad Spoon, | Sugar Shell, |
| Salad Fork, | Butter Knife, |
| Preserve Spoon, | Ice Cream Server, |
| Fish Knife, | Ice Cream Spoon, |
| Fish Fork, | Ice Cream Fork, |
| Pie Knife, | Oyster Fork. |

Put up in Satin-Lined Boxes.

The Berry Spoon, Salad Spoon and Fork are now ready for delivery. The balance of the pieces will be ready April 1st.

---

This pattern will be furnished both in Standard and Triple Plate.

TRADE-MARK:

1835—R. WALLACE—A1.

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## R. Wallace & Sons Mfg. Co.

Factories:

WALLINGFORD, CONN.

Branches:

NEW YORK, 226 Fifth Avenue.
CHICAGO, 109 Wabash Avenue.
SAN FRANCISCO, 120 Sutter Street.

*SEND FOR OUR LATEST ILLUSTRATED PRICE-LIST*

# Among the Trade.

(*Continued from page 366.*)

**Minnesota.**

Fiske Bros., Minneapolis, recently purchased the stock of Streeter & Meier. Mr. Streeter has connected himself with Fiske's Washington Avenue store, and Mr. Meier with Fiske Bros.' store, at 407 Nicollet Avenue.

Robert Helmer has opened a store in Buffalo Lake.

M. C. Working, Northfield, recently sold at auction a portion of his stock and will take a short vacation, after which he will visit the East and purchase new stock.

D. R. Bryan, of Sandstone, has opened a store in Mora.

O. A. Anderson, Fairmont, has opened a store in Adams.

C. F. Warner, Cloquet, has opened a store in Two Harbors.

C. F. Ashton, of Ashton, Brothers, Clinton, has moved to Alison.

F. A. Knowles has removed his repair shop in Adrian into Gerboth's pharmacy.

Anderson Bros., of Wilmar, have remodeled and beautified their store, thus adding to its attractiveness.

O. A. Anderson, of Lyle, has opened a branch store in Adams.

**Missouri.**

K. T. Smith has opened a jewelry store at Bosworth.

Moke Martin, of Kahoka, has added jewelry to his drug business.

**Montana.**

The famous will case of Millionaire Davis, of Butte, which has been in all its ramifications a *cause celebre* in the history of modern litigation, a case in which the great Ingersoll figured, and in which the best lawyers of half a dozen States were employed for nearly ten years, is finally ended, justice has triumphed, Butte's interests are protected, and all the heirs are satisfied. This result is largely due to the devotion of John H. Leyson, the administrator, who performed his onerous part with fidelity and satisfaction to all.

L. F. Verbeckmoes, 228 East Commercial Street, Anaconda, opened his new store on April 6th, at 111 East Park Avenue.

**Nebraska.**

David Haken, of 1007 O Street, Lincoln, has recently beautified and refurnished his store.

The Webster Manufacturing Co. has been incorporated in Wymore, this State, to manufacture jewelers' and dentists' supplies.

August Meyer, of Grand Island, has enlarged and improved his store of late. He now occupies the entire room and has added other lines to his stock. Mr. Meyer has been quite successful in building up a nice business since locating at Grand Island.

McElvaine Bros., of Grand Island, are now nicely located in their new store, which is much larger and more attractive than their former place of business. The firm, which is nothing if not enterprising, have added new lines to their business. On one side of the store they display a select stock of books, stationery and novelties, on the other, jewelry. A new feature is an optical department, presided over by Frank McElvaine, graduate optician. Mr. McElvaine is an enthusiast on optics and is meeting with considerable success in the practice of the science.

Jeweler Fritz Hoefer, of Aurora, is fast becoming famous as an optician. He already enjoys the reputation of being an expert in fitting glasses, and his trade in this line is extending right along.

Jeweler George Arkwright, of Beatrice, contemplates a trip to Europe soon. He expects to sail the latter part of the present month or early in June.

At Omaha there has been much complaint among the reputable jewelers of the city, concerning the operations of a number of snide jewelry auction houses which have recently opened. These establishments have been doing a rushing business among a certain class, and are expected to do even more as soon as the exposition crowds start. The jewelers of the city are arranging with the City Council to drive these establishments out of business by imposing a heavy license fee. It damages the jewelry trade particularly, but it also injures other branches of business in the city, and the merchants in other lines are enlisting in the crusade against them.

J. A. Patterson, of the Hamilton Watch Company; Harry S. Aicher, of the A. F. Towle & Son Company; N. Strauss, of Louis Kaufman & Co.; Milt Sandfelder, of J. Floersheim, Kunstadter & Co.; and Emel Despres, of H. F. Hahn & Co., have been calling on the trade through Nebraska the past month.

Ed. A. Polley, of Seward, has sold his store building and is closing out his stock, with a view of embarking in business in other fields.

The present outlook for crops in Nebraska is fine.

T. H. Winn, who, for five years past, has held the position of watchmaker with Jeweler C. S. Hayes, of Norfolk, is now located in Omaha, where he has secured a position with George W. Ryan & Co., at 109 South Sixteenth Street.

Jeweler D. F. Eaton, of Central City, dropped dead on March 26th. His death was very sudden and unexpected.

**New Hampshire.**

Norman G. Carr, of Concord, recently celebrated the forty-third anniversary of the establishment of his business.

The Hamilton Jewelry Co. has been incorporated to conduct a retail business in Deerfield.

Everett N. Sanderson has opened a store in Manchester.

**New Jersey.**

H. C. Anderson, of Paterson, has moved from 144 to 167 Market Street.

S. Nathan has opened an attractive store at 92 Newark Avenue, Jersey City.

G. M. Kohl has opened a store at 179 Newark Avenue, Jersey City.

**New York.**

R. P. Thorn & Sons, Albany, will remove, May 1st to 9 North Pearl Street.

Jacob Blum, Cohoes, has greatly improved his store.

William Sedgwick, in the jewelry business at Waverly for twenty-five years, has moved to Jamestown.

W. L. Doremus, Cazenovia, has moved his jewelry business to a more desirable location in that town.

Frederick Witherstein, of Herkimer, has enlarged and remodeled his store.

James Southgate has removed from Ilion to Rochester, where he will engage in the jewelry business.

Stern & Blum, Portchester, have moved into their new quarters at 40 North Main Street.

George W. Hoff, of Utica, will move, May 1st, to 90 Genesee Street.

A. M. Gillette, of Troy, recently visited New York City on business.

George H. Bassinger, Glens Falls, has recently greatly improved his store.

W. N. Rudd and Samuel E. Williams have begun business as Rudd & Williams, at 123 West Dominick Street, Rome.

**North Carolina.**

William Spruill has opened his new store in Edenton,

Jeweler Farrar, of W. B. Farrar & Son, Greensboro, died recently. Mr. Farrar went to Greensboro in 1868 and engaged in the jewelry and watchmaking business, at which he built up a good trade, being a fine workman. Some years ago he patented a turbine water-wheel, which gained a national reputation. His son succeeds to the management of the business.

C. H. Ogdin, lately of Ashland, Ky., has begun business in Waynesville.

W. H. Leonard has succeeded W. H. Leonard & Co. of Winston.

**Oklahoma.**

J. P. Majors has succeeded to the business of Ely & Cook, at Oklahoma City.

**Ohio.**

P. A. Tiffany, Xenia, has greatly improved his store.

Guthman Brothers, of Youngstown, have added cut glassware and art goods to their other lines.

I. E. Sprang, of Mansfield, has moved to Sycamore.

R. S. Wood and Grant B. Kee recently formed a partnership, under the firm name of Wood & Kee, to conduct a jewelry business in Painesville.

William Keck, of Ashland, has greatly improved and beautified his store.

Albert Cajacob has bought out Peter Boss, Wapakoneta.

**Pennsylvania.**

J. C. Schmidt, Lebanon, has moved to a handsomer store at 743 Cumberland Street.

J. G. Martin, of Wilkes-Barre, has remodeled and improved his store, recently damaged by fire.

D. Urwitz, of Wilkes-Barre, has moved from 45 South Main Street into a commodious corner store, known as the Weitzenkorn Building.

E. D. Bradley, formerly of Deposit, N. Y., has moved to Susquehanna, this State, where he has opened a store in the Cook Block, Main Street.

C. W. White, of Warren, has recently remodeled and improved his store.

Thomas Buchanan, Shenandoah, has moved to 118 South Main Street.

H. E. Stoutenberg has opened a store in Sayre.

August Kruger has removed from Phoenixville to Bridgeport.

Clarence Harris has begun business in Avoca.

S. C. Truby, of Duncannon, has moved into a better store.

Smith & Witmeyer are a new firm of nickel and silver platers in Chester.

A. H. Montgomery has begun business in Chambersburg.

C. A. Aughinbaugh, Harrisburg, has remodeled his residence at 27 South Third Street, and fitted up a very elegant store room, making one of the handsomest jewelry stores in the city.

Lewis D. Cook, formerly with N. B. Bailey, of Dillsburg, has started in business in Berwick.

T. B. Zeller, of Brookville, has moved into more desirable quarters.

J. G. Bierman, of Waynesboro, has remodeled and improved his store.

G. W. Hewitt, Greenville, has been appointed watch inspector for the Bessemer Railroad at that place.

**South Dakota.**

B. K. Maxfield & Co., of Iroquois, have dissolved partnership. C. A. Fowler has taken the drug line and the jewelry business will be continued by Mr. Maxfield.

**Tennessee.**

O. B. Boughton has opened in business in Bell Buckle.

The store and stock of W. R. Hershberger, Tullahoma, have been sold to George M. Book & Co., who will continue the business.

J. M. Mosier has removed from Kingston, to Hartman, and been succeeded at the former place by J. P. Mosier.

**Texas.**

Hunter & Freeman have succeeded W. F. Hunter & Co., of Belton.

S. H. Babb, of Winsboro, has moved his business into more desirable quarters.

H. C. Ritchie, of Roby, recently purchased a business building, into which he will move his store.

**Vermont.**

E. L. Patrick has moved from Poultney to Granville.

George B. Lang has moved from Morrisville to Barton.

**Wisconsin.**

H. P. Stenerson has opened a store in Colfax.

E. A. Zimmerman has opened a repair shop in Hudson.

J. R. Meier, Clintonville, has been succeeded by J. J. Meier, who will pay all liabilities and collect all outstanding accounts of J. R. Meier.

A. J. DeMers has moved from Wausaukee to Marinette, where he will open a jewelry store and restaurant.

G. E. Carlson, of Ashland, has moved to 311 West Second Street.

W. E. Palmer has opened a store in Minocqua.

The store of C. W. Crosby & Co., Brookfield, is noted for handsome window displays. Single lines are selected for display in, turn and ingeniously arranged. Some weeks it is fine engraved stationery and cards; then displays of fine watches, then rings, diamonds, and the new novelties; then belts, bracelets, silverware, cut glass and bric-a-brac, and so on.

C. T. Sharp, of Ripon, has recently completed extensive improvements in his store.

L. A. Baumgarten has recently embarked in the jewelry business at Tomah.

**Wyoming.**

The Murchison Jewelry Co. have succeeded to the business of Murchison Brothers, of Rawlins.

S. A. D. Keister, druggist, Lander, has engaged a jeweler and added jewelry to his stock. Harry Bennett, formerly with H. Duffner, of Watertown, S. Dak., is now in Mr. Keister's employ.

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*"Enclosed find one dollar. I wouldn't know how to improve The Keystone. I think it the best magazine for the trade that is published."—H. G. Hudson, jeweler, Amesbury, Mass.*

# AIKIN, LAMBERT & CO.,

Manufacturers of **Fine Gold Pens; Holders in Pearl, Silver, Gold, Shell, Agate, Ivory, Ebony and Gold Plate; Pencil Cases, Tooth and Ear Picks, Glove Buttoners, Match Boxes, Paper Cutters and Silver Novelties.**




*General Agents for the PAUL E. WIRT FOUNTAIN PEN.*

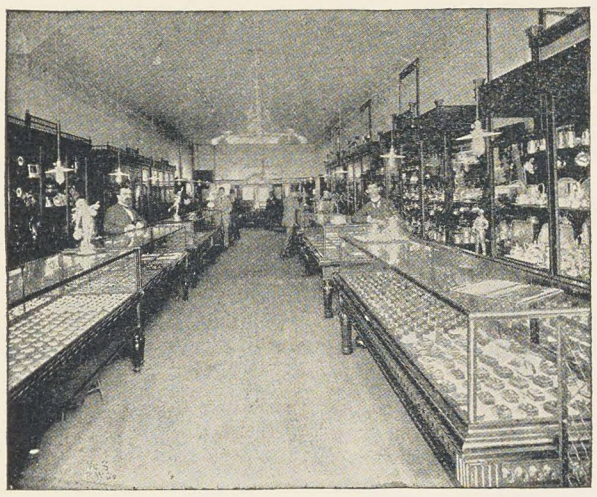
*MERCANTILE FOUNTAIN PENS, warranted satisfactory.*

S. N. JENKINS, 103 State Street, Chicago Agent.

**SALESROOM—19 MAIDEN LANE, NEW YORK.**

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## THE BEUTELL MFG. CO., ATLANTA, GA.



Designers and Makers of

Modern Jewelry Store Furniture

Show Cases

Designs and Estimates Furnished

WRITE US

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# LORGNETTE CHAINS

High-grade Filled Solid Gold Slides.

**POPULAR STYLES.** **POPULAR PRICES.**

Send for selection package.
**Brand New Goods.** No old-style bargain-counter stock.
It will pay you to trade with **A. & A.**

## Averbeck & Averbeck,

*16 & 18 Maiden Lane,* *NEW YORK.*

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# MAINE

## Souvenir Coffee Spoon

THAT IS A GREAT SELLER
BECAUSE OF ITS HISTORIC VALUE




The Bowl has in it the wreck of the MAINE, with the American eagle hovering over it in the act of screaming.

The Handle is a cannon on which Uncle Sam is shown in the act of giving President McKinley fifty million dollars for defense.

Fair quality silver plate. Gilded bowls.

Price, **75 cts.** per dozen, or **$7.50** per gross.

Let us send you a dozen. They are sure to sell.

## SOUVENIR COMPANY,

**3 MAIDEN LANE,** **NEW YORK.**

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# *Music on Your Own Terms*



**The Graphophone** requires no skilled performer to play it, and yet it will furnish any kind of music desired. It is vastly superior to other so-called talking machines, because on the Graphophone one can easily make records of his own music, song or story, to be instantly reproduced. Its performances are not confined to the reproduction of specially prepared and stereotyped subjects. It is fascinating and marvelous as an entertainer. Jewelers and music-dealers will find the Graphophone a great attraction in their stores and, more than that, a most profitable addition to their stock. Liberal terms are offered to dealers, and can be learned on application.

**Graphophones are Retailed for $10 and up.**

Manufactured under the patents of BELL, TAINTER, EDISON and MACDONALD. Our establishment is manufacturing headquarters of the world for **TALKING MACHINES and TALKING MACHINE SUPPLIES.**

**WRITE FOR CATALOGUE 21.**

## COLUMBIA PHONOGRAPH COMPANY, Dept. 21,

NEW YORK—1155, 1157, 1159 Broadway.
PARIS—34 Boulevard des Italiens.
CHICAGO—211 State Street.
ST. LOUIS—720 & 722 Olive Street.
PHILADELPHIA—1032 Chestnut Street.
WASHINGTON—919 Pennsylvania Avenue.
BALTIMORE—110 East Baltimore Street.
BUFFALO—313 Main Street.

# KNOW YOUR CUSTOMERS

**SECURING NEW CUSTOMERS**

Every merchant should make strong efforts to cultivate and retain new custom. It should be made a point to ascertain the best means by which this can be done. If it is neglected but little real progress can be made; only a comparatively few established houses have a sufficiently large patronage from regular customers to enable them to dispense with strenuous endeavors to acquire new ones. Even these well-known establishments do not, as a rule, relinquish all attempts to obtain new patrons; for if they did, they would not continue to advertise, as many of them do. It is so desirable in every way to attract new custom to the store that it is certainly worth some extra expense in the beginning, since it is all made up ultimately if the patronage becomes permanent. When the new customer makes the first visit, the merchant naturally tries to furnish inducements for calls in the future, through courtesies and attentions which are permissible under the circumstances. More than this may be done if the merchant and clerk are alive to the opportunities of the situation. It would be well to secure the names and addresses of new patrons and put them on the mailing list, so that they could be sent information in regard to new goods or any special inducements which might be held out from time to time.

**WHERE TACT IS NEEDFUL**

The manner in which name and address are to be obtained is a delicate matter where the information is not directly vouchsafed when packages are to be delivered It would not be quite proper to bluntly inquire for address, but where difficulty is found in obtaining it in general conversation, it would not be indecorous to inform the customer that it is the practice of the establishment to frequently publish attractive advertisements of new goods or bargains, which are sent out by mail, and if agreeable, these would gladly be dispatched to him. Variations of this plan could be followed in order to relieve the monotony. A self-addressed postal card or a circular in self-addressed envelope might be placed in customer's package, upon either of which could be printed the following: "We would like to have your patronage, and doubtless you want us to have it if our goods and prices are right. We would be pleased to mail you information with regard to these at different times. If this plan is agreeable to you, please give your name and address below."

## Pointers to Salespersons

1 An impatient salesperson may undo half his best work.

2 Do not yield to peevishness or sarcasm over a customer's criticism. Your side of the counter must be dedicated to politeness.

3 To make your customer feel that he has made a pleasant visit, as well as a good trade, is a paying investment.

4 Don't talk harshly of competitors in presence of customers. What rivals do you should know, not for comment, but for your own instruction.

5 Do not say too loudly that you are selling the very best goods ever known at the very lowest prices ever offered. Perhaps you are, but it is better to make your claims seem more probable.

**ADDRESS CUSTOMERS BY NAME**

When you discover the names, remember them. It may be set down as a correct proposition that every man or woman likes to have his or her name remembered, and to be addressed by that name whenever the occasion requires. A retailer should, therefore, for business reasons, if for no other, have a good memory for names and faces. This is something that it would well repay any retailer to cultivate. It is almost indispensable to success in nearly all towns where transient trade is small.

When a woman comes into your store, endeavor to ascertain as speedily as possible who she is and where she lives. Then, instead of the formal bow, the next time she enters the store you will be able to address her by name and show that you appreciate her trade by many little attentions and inquiries which are in the power and province of every retailer to make. When a woman finds out that her name or face is not familiar she naturally feels that either her patronage is not considered of much importance, or that the retailer is indifferent to his customers' trade, and in either case it is only human nature for her interest in that establishment to begin to flag. —Ex.

**A DUTY OF CLERKS**

A successful merchant said recently: "I instruct my clerks to always ascertain, if possible, the names of those with whom they have dealings, especially if they have reason to believe they are likely to come here again. Of course, the tactful clerk can often do this without asking a direct question. It is wonderful how much a man can get out of another without an apparent effort in that direction, if he fixes his mind on it and gives thought and study to methods of doing it. When a clerk learns the name of a customer, he should be careful to ascertain the way it is spelled and the correct pronunciation, if it is a difficult one. When the customer once gives his name, he will be flattered rather than otherwise at any inquiries of that kind by the clerk. Little things like this go far, in my opinion, towards the making of a successful clerk or merchant. I have experienced time and time again the value of calling a man by his name and speaking to him as an acquaintance. Here is where the country merchant has the advantage of the city retailer. He knows everybody in the country round about, and everybody knows him. By proper treatment he can make his store the natural headquarters of his farmer friends when they come to town, and so bind them to his store that it will take more than ordinary effort for a competitor to call them away. This is something worth remembering."

Referring to this matter another merchant said: "Outside of a thorough knowledge of the goods he handles, I really consider that the ability to remember faces and names is one of the most important qualifications of the successful clerk. Some people may think that I lay too much stress on this matter," he continued, "but I do not think so. If a man comes into the store here and buys some little article, and comes again within a couple of weeks and is met with a hearty greeting by the man who served him before, and realizes that he is remembered, it is likely to tickle his vanity immensely. He feels that the house considers that it has a friend in him and wishes to cultivate him, If he is greeted by name, it may surprise him, but it makes him feel all the more that he is appreciated."

**KEEP OLD CUSTOMERS**

But, while seeking new customers, make certain you retain the old ones. "A bird in the hand is worth two in the bush," any day. When an old customer gets in a huff and thinks he is the injured party, look into the matter and see where the trouble lies. Don't let him get out to air his opinions among his friends until you have tried to bring him back into the fold. Usually incidents of this sort are based on grounds that are too frivolous for a quarrel, and certainly not sufficient for a retailer to lose trade over. If you are at fault, make amends. If the customer is the guilty party, meet him half way. Independence is a valuable quality, but pigheadedness is enough to ruin any business. Independence does not prohibit a man from getting at the truth and illustrating it, by any means. Every old customer who transfers his patronage elsewhere must be replaced by a new one, and it is easier to hold the old one, if the proper means are employed at the right time.

**TREAT ALL CUSTOMERS ALIKE**

Because you happen to be doing a good business, don't make the mistake of getting churlish with customers. That is a good way to lose all you have gained. At all times politeness paves the way to prosperity, the lack of it drives away your best trade. Don't tire of taking pains to please the people, or of trying, by attractive methods, to gain new friends from day to day. Never let the report get abroad that you are disobliging or disrespectful. That will do you more harm than your best advertisement will do good. You really can't afford to get irritated because a customer is somewhat hard to please. Remember, your place is to please the public if you wish to succeed. It is a great mistake to discriminate too much between the regular and the casual customer. The same means that made the first one permanent can make the second one permanent, too. Treat every caller as if he or she were a regular trader at your store, and you will find that a good way to win friends. Affability, anxiety to satisfy, an unconsciousness—real or assumed—of being put to any trouble or inconvenience—all these are instrumental in pleasing the public, and they are positive necessities in every store that is run with any idea of being a permanent success.

**CLERKS SHOULD KNOW WHAT IS ADVERTISED**

The profits of advertising may be greatly diminished by clerks' ignorance of what is advertised, and consequent inability to understand customers.

Every-day customers are often driven away from bright, well-advertised stores because of bad treatment by the clerks.

You often advertise something you don't tell your clerks about, or more likely a shabbily-dressed customer is given the cold shoulder because he is shabby.

See that all persons who enter your store are treated alike; try to make them feel that it is you who is honored by their patronage.

Most people like to trade where they are given "a glad-to-see feeling," and will go out of their way to trade at that store.

Remember the clerk who ignores any customer, no matter who, is not worth the room he occupies, for every customer he so treats is an advertisement of large circulation against you.

Watch the affairs in your store and it is more than likely your advertising will soon begin to show a desirable profit.

**CONSULT CUSTOMERS' INTEREST**

Never sell goods to a man without consulting his interests coincidentally with your own. How often has this motto enabled a student of elements of success to reach, in the end, the goal he desired! That there is no royal road to learning is recognized. That there is no royal road to wealth is also recognized. Success in the latter field demands the possession of true principles and an adherence to honorable customs. Success in the former requires energy and steadfastness. The man who plans ahead in harmony with these principles is the man who is going to succeed in the end.

The clerk's willingness to keep everlastingly at it, and to do more about the store than he is paid for doing, is one type of evidence that he will get along in life successfully. His ambition to make the store the most attractive in town; his watchfulness to speak a good word for it whenever the opportunity is presented; and his earnest desire to work in harmony with the policy of his employer, and to evince to customers that that policy is to please and to satisfy them, all count in the clerk's favor in the end.

Every clerk should have an ambition above a mere clerkship; he should have an ambition above being considered a simple clerk. Mark you, he can be a merchant without being proprietor; he can be a business man without owning a store.

The man with knowledge, judgment, experience, and the strength of character back of it to make his qualities felt, is a merchant in spite of circumstances of purse, place or position.

It should be the aim of every young fellow of mettle to make a merchant of himself, whether he ever walks his own floor or makes himself valuable on somebody else's. One or the other he will be; a merchant in his own store or a merchant in some other man's store.

# LOUIS KAUFMAN & CO.

Established 1885

## RING MAKERS

## 2500 VARIETIES OF SET RINGS

*Which shall it be,*
*a visit from one of our five travelers,*
*or*
*a selection package?*
*We await your pleasure.*

Factory, Brooklyn, N. Y.

Offices, { 54 Maiden Lane, / Fahys Building, } **NEW YORK**

---

VACHERON & CONSTANTIN
TRADE-MARK.

# Vacheron & Constantin

have received the following awards at the Annual Competitive Test for 1897, held at the Geneva Observatory, the results of which have just been announced:

**The only First Prize for a series of Best Adjusted Watches.**

**The only First Prize for Single Watches.**

**A Second Prize.**

**A Third Prize.**

This uninterrupted series of successes substantiates the enviable reputation of

# Vacheron & Constantin Watches

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**EDMOND E. ROBERT,** 3 Maiden Lane, NEW YORK.

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## A Souvenir Spoon That Everybody Will Want.




No. 6247. SOUVENIR COFFEE SPOON.

Made with four different Handles. Sterling Silver $\frac{925}{1000}$ fine.

PRICE-LIST:

One dozen, $3.00. Enameled Handles, all gilt, one dozen, $5.00.
Larger size Coffee Spoons, $6.00 dozen. Enameled Handles, $8.00 dozen.
Five o'clock Tea Spoons, $9.00 dozen. Enameled Handles, $13.50 dozen.

*Terms: 3 per cent. 10 days; 30 days net.*

Simmons & Paye, "*The Souvenir House*,"
129 Eddy Street, PROVIDENCE, R. I.

---

# THE EUGENE DEIMEL CO.

Wholesale Jewelers,

157 Jefferson St.

Detroit, Mich.

*A full line of these goods always in stock*

*Watches, Clocks*
*Chains, Charms*
*Tools and Material*

Your Patronage Solicited.

Orders for Materials and Jewelers' Findings accurately filled on shortest notice.
Orders for the LATEST NOVELTIES and NEWEST STYLES promptly filled.

## Points About Traveling Men.

**Ed. C. Jamison** and E. K. McGillivary, who represent J. W. Forsinger, of Chicago, have both been at headquarters during the past month. They have had an excellent trade thus far this season, holding all old customers and gaining new ones.

**Coleman E. Adler**, formerly traveling representative for Byron L. Strasburger & Co., and later for Ingomar Goldsmith & Co., New York, has opened a jewelry store at the corner of Custom House and Royal Streets, New Orleans, La. This is an excellent location right in the business district.

**C. W. Edwards,** well known among the Western trade as a former traveler for several Chicago houses at different times, but lately with W. J. Braitsch & Co., the silversmiths, in Western territory, has forsaken the jewelry line and gone with the N. K. Fairbank Company, covering the larger cities of New York State. We hear that "Larry" is already a winner in his new line and is making a howling success of the soap and grease line. Good for "Larry," say we.

**Joe. E. Reagan,** of Baldwin, Miller & Co., has been visiting the trade over Oscar Derndinger's territory, in Indiana, the past month, on account of the continued illness of the latter.

**The** Commercial Travelers' Fair, which only recently closed in New York City, has been a disappointment to some extent because of the lack of interest taken in it by those whom it was intended to benefit most. It seems unfortunate that the traveling men do not realize what is for their interest, and make every effort to maintain a "home" that has required so much of a struggle to place where it now is. Other fraternities are not slow to grasp the situation and appreciate the need of "homes" of this character, and the salesman should not be behind his brethren. Whatever criticism may be offered, the fact remains that the "home" at Binghamton is capable of accomplishing a great and noble work in the future, but the present must establish it.

**A very** strong team of propellers are Max Noel and Frank Shadbolt, who have fenced off four or five of the Northwestern States for the Stein & Ellbogen Company, of Chicago. They have roamed over the prairies of the Northwest country so long that they care but little for the charms of city life, and a two weeks' confinement in the home office makes them wilt like the last rose we often hear about. But they are a clever pair of hustlers, just the same, and never fail to land their share of trade.



J. A. Patterson.

**The young** optical, watch and jewelry salesman whose photograph we herewith present, needs no introduction to the trade in Iowa, Kansas, Nebraska and the far Western territory, where his efforts have been largely centered. J. A. Patterson is a Pennsylvanian by birth, he is thirty-one years old, and has gained his sturdy personality by being brought up on a farm, remaining there until he was nineteen years of age. He went West at this time and located at Omaha, Neb. There Mr. Patterson engaged in railroading for several years, when he was induced to take up the life of a traveling jewelry salesman, accepting a position with an Omaha wholesale firm. He later joined the traveling force of the Hamilton Watch Company, where he has scored a noted success ever since. In 1896 Mr. Patterson took up the Geneva Optical Company's line in connection with his watch line, and has ever since found it a winning combination. This year Mr. Patterson has added still another line to his repertoire—the solid gold jewelry line of Theo. Schrader & Co., Chicago. Few men are able to make a success of three lines on the road; but if any man can, that man is J. A. Patterson. Intelligent, practical and business-like at all times, he has become such an expert in the goods that he handles that he can enlighten anybody about them. Personally, he is a bright, quick, energetic man, who has a rarely congenial, sympathetic temperament. He has the friendly interest of hundreds, and THE KEYSTONE joins them in their wishes for his success.



Henry S. Hurlbut.

**Henry S. Hurlbut,** formery of the Burt & Hurlbut Co., Detroit, Mich., has been employed by The Non-Retailing Company, Lancaster, Pa., to represent this well-known jobbing corporation on the road, in Ohio and Michigan. We congratulate both parties to the alliance—the Non-Retailing Company are fortunate in securing the services of a salesman of such high rank, and Mr. Hurlbut can plume himself on being identified with a jobbing house which stands high in trade favor. Mr. Hurlbut was born in Greenville, Pa., about thirty-three years ago. He was interested in the Burt & Hurlbut Company, of Detroit, and visited the Michigan trade, after 1883, in the interests of that house. On the dissolution of the firm he went into the silverware line on his own behalf; and has now disposed of his interest in that business to ally himself with the Non-Retailing Company. Mr. Hurlbut has an attractive personality that makes and holds friends; and with the fine stock which he carries his success is assured in the field which he is about to enter in behalf of the enterprising Lancaster jobbing house. THE KEYSTONE'S best wishes go with him.

**George Wettstein,** the well-known Cedar Rapids, Iowa, jobber, has been sadly bereaved of late. While on an extended Western trip he was called home from Salt Lake City by a telegram, saying to come at once, that his little three-year-old son was very ill. This was on March 28th, and on April 2d, three days after Mr. Wettstein's arrival at home, the little fellow died from congestion of the brain. Mr. Wettstein will have the sympathy of a large circle of friends, both in and out of the trade, in his sad loss.

**W. L. Nason,** the well-known silverware salesman, is now covering the middle West for the Campbell-Metcalf Silver Company. He was in Chicago a few days last month and called on the Western headquarters of THE KEYSTONE, saying that he was pleased with his sterling line and that he was having a fairly good business.

**To cut** prices below the percentage of profit is something that should be avoided, if possible, by every commercial traveler. Such proceedings only establish a precedent that will be difficult for you to overcome sooner or later, and that is bound to react on the firm you represent, as well.

**E. O. Baumgarten,** whom everybody in the Southwestern trade knows as "Ed.," of Pairpoint fame, has retired from the road and is now engaged in the plumbing business in Chicago, in company with a brother.

**Louis W. Bruns,** Western traveler for the Juergens & Andersen Company, Chicago, returned to headquarters the middle of last month from an extended trip through the territory west of the Mississippi. He was absent over two months, and reports an excellent trade. Mr. Bruns tells us that he found quite a different feeling among the trade in the Western country from what he found a year ago. The dealers are having a much better business than last year and are buying accordingly.

**E. F. Strickland,** widely known through the West as a clock salesman, is now with the Seth Thomas Clock Company, covering the territory formerly occupied by Jack Alder.

**J. M. Scott,** Iowa and Nebraska representative for Woodstock, Hoefer & Co., Kansas City, was at headquarters for a few days last month, stocking up his trunks, after an extended trip over his territory. Mr. Scott reports a fairly good trade—quite an improvement over last spring.

**We are** glad to see that traveling men to-day, at least a good portion of the profession, object to the use of the word "drummer," and that there is a movement on foot to abolish the term. In older times, when it was the wont of quack doctors, fakirs and itinerant mountebanks to make periodical visits to country towns on market days, they would beat a drum to call up a crowd. This was termed "drumming for trade," and it is presumed that this is the origin of the name. It is strange that in England, where the expression was first born, it is now unheard of in connection with the commercial travelers, for in that country traveling salesmen are called "bagmen" or "knights of the gripsack," but in no instance would the fraternity countenance such an appellation as that of "drummer."

### He Didn't Sit Down.

She was young and good-looking but very rural, and the drummer in the seat back of her did want to move over and talk to her, but she didn't give him any chance. Finally he offered to put the window up for her.

"No," she said, "I don't want it up."

"I beg your pardon," he responded.

"You don't have to, "she chirruped, "but if you want to set in this seat with me, why in thunder don't you? I promised my husband this morning that I wouldn't talk to any man that was not homelier than he was, and he said if I would keep my promise he was willin' to let me go clean 'round the world by myself. You never saw my husband, did you?" and she moved over to make room for him, but he heard seven people laugh, and he backed out and went into another car.

### No Rip Van Winkel Wanted.

This story is told of Joseph Jefferson: A number of years ago he played a one-night engagement in a small Indiana town, appearing in his favorite part. The hotel at which he stayed was infested by an Irishman "recently landed," who acted as porter and general assistant. Judged by the deep and serious interest which he took in the house, he might have been clerk, lessee and proprietor rolled into one.

At about six o'clock in the morning Mr. Jefferson was startled by a violent thumping on his door. When he struggled into consciousness, and realized that he had left no call at the office, he was naturally indignant. But his sleep was spoiled for that morning, so he arose, and soon after appeared before the clerk.

"See here," he demanded of this individual, "why was I called at this unearthly hour?"

"I don't know, sir," answered the clerk, "I'll ask Mike."

The Irishman was accordingly summoned. Said the clerk, "Mike, there was no call for Mr. Jefferson. Why did you disturb him?"

Taking the clerk by the lapel of the coat, the Hibernian led him to one side, and said, in a mysterious whisper: "He were shnoring loike a horse, sor; and oi'd hurd the b'ys saying something about how he were once afther shlaping for twinty years, so oi says to mesilf, 'Moike, it's a-coming onto 'im again, and it's yer juty to get the craythe out o' yer house instantly.'" —Harper's Monthly Magazine.

### Smallest of Watches.

The smallest watch in the world is at present on exhibition in a show window in Berlin, says the *New York Herald*. The lilliputian timepiece was made in Geneva. Following are given some of the tiny dimensions of its works: The diameter of the little watch is less than half an inch. The exact measurement is 10½ millimetres, or .4137 inch. Its thickness is 3 millimetres, or .1182 inch, being but little more than a tenth of an inch. The length of the minute hand is 2.4 millimetres, or .09456 inch. That of the hour hand is 1.3 millimetres, or .05122 inch. The entire works of the tiny watch comprise 95 individual pieces, and its exact weight is 14.3499 grains, or, according to the metric system, 93 centigrammes—less than a single gram! After having been wound up with the diminutive key the watch will run for 28 hours. The mainspring when run down has a circumference of .13396 inch. Its weight is 38 milligrammes, or .5902 grain. The most delicate tools and measuring instruments were made specially for the construction of the lilliputian watch. The preliminary work in the making of the timepiece was very expensive, and the selling price of the watch is comparatively low, being $1250.

### Keep Your Store Windows Clean.

When you clean house, began on the outside of the wall—that is, with the front of your store. Don't be afraid of spoiling the windows with water, for they are searchlights for trade. Keep them clean, by all means; they are the first department that meets the trade, and do not repel it at first sight with dirty windows. Monopolize your windows to the best of your ability; they are your greatest drawers. Fix them up tastily. Do not throw goods into them at random, for they will reveal your ignorance more readily than anything else. Decorate your windows in harmony with the season and with public events; this will show your wise forethought and give you an advantage over your competitors who do not take these things into consideration. Change your windows as often as once week; and be sure and make a clean sweep, for by so doing you will catch the same persons' attention twice. —Ex.

One of our new style Upright Silverware Cases in the C. D. Peacock Store,
Adams and State Streets, Chicago. The Finest Jewelry Store in America.



Just the mere fact that a house like this has had us make its fixtures is proof in itself that the goods we make are right.

Mr. Peacock gives us permission to refer to him for opinion and information regarding the same.

△ △ △ △

When you intend getting new fixtures for your store, send us an accurate floor plan and we'll send you specifications and prices. There'll be no obligation attached.

## ALEXANDER H. REVELL & CO.,

Manufacturers of High-Grade Store Fixtures.

431, 433, 435, 437 Fifth Avenue, Chicago.

---

# THE UNITED STATES GOVERNMENT IS PARTICULAR

## Therefore:

When in buying SILVER-PLATED WARE in great quantities it specifies that all goods shall be up to the quality of

"THE BRAND WITHOUT A RIVAL"
ROGERS ANCHOR BRAND
SILVER PLATED WARE.

It speaks volumes in praise of the reliability and worthiness of our brand, which has been selected as Uncle Sam's choice.

MADE ONLY BY US.

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HARTFORD, CONN.

FACTORIES
HARTFORD, CONN.
WALLINGFORD, CONN.
NORWICH, CONN.
TAUNTON, MASS.

### An Easter Sunday Meditation.

BY JOHN TWEEZER.

It is the morning of Easter Sunday. The air is vibrant with the music of the bells which from every steeple are summoning sinners to repentance —with an incidental premium-offering of the opportunity to exhibit their Easter bonnets and spring furbelows.

It is the Day of the Resurrection. The risen Christ is preached from flower-decked pulpit in every Christian land; and nature joins the human chorus of praise, in bird-song and bursting leaf-bud and ice-freed river rippling towards the sea, —in all the testimonies of her great awakening she speaks to the eye and the ear and the heart of that other and mightier miracle when Jesus Christ, on the first Easter, "rose from the dead and ascended to the right hand of God the Father."

For eighteen hundred years the Resurrection has been celebrated with praise and thanksgiving. In that time the teachings of the gentle Nazarine have been spread from the little country bordering the Jordan to the uttermost ends of the earth; from the few score of humble fishermen his disciples have multiplied into hundreds of millions, comprising the great, the rich, and the learned, the world over. Therefore, the visitor from another planet, with knowledge of the long continuance of this propaganda, would expect to find in civilized humanity on our earth, a practically unanimous acceptance of Christ's doctrine, as delivered from his own lips in the Sermon on the Mount. He would expect to witness the universal exemplification, in the brotherhood of nations, of the command of the New Dispensation, "I SAY UNTO YOU, THAT YE RESIST NOT EVIL; BUT WHOSOEVER SHALL SMITE THEE ON THY RIGHT CHEEK, TURN TO HIM THE OTHER ALSO. LOVE YOUR ENEMIES, BLESS THEM THAT CURSE YOU, DO GOOD TO THEM THAT HATE YOU, AND PRAY FOR THEM WHICH DESPITEFULLY USE YOU AND PERSECUTE YOU."

The visitor would make "a bad guess"!

While the Easter bells are ringing comes another ringing which discords their melody—the hammering of armor-plates on war-ships, the din of forges fashioning guns, the roar of furnaces whose hot lips are pouring iron into shapes of mighty cannon, the reverberations of target-practice at sea, the present multitudinous activities among all Christian countries which belie the Christian zeal for the Master who commanded, "Peace on earth and goodwill to men."

This Easter morning on which I write is big with fate. To-morrow, the President will submit to Congress the delayed message on which hangs the issue of war or peace. What it will say, or what results will come from it, no one now can confidently forecast; we will all know, long before this essay meets your eye. I frankly admit that I am heathen enough to agree with the "Christian" ministers who in numberless pulpits to-day will ask that this nation avenge the murder of the sailors of the Maine; and my conscience is so deaf to the plain command of Christ that I should exultantly rejoice to hear that our mighty fleet was heading for Havana to drive Spain from the fair island which she has too long oppressed; but as, by these presents, I cannot take refuge with the Pharisee, and must confess myself one with you in heathenness, let me direct your attention, my brethren, to the folly of our posing as a "Christian" nation which accepts the Bible as the Word of God. Let us be *frankly* heathen, until we dare deserve to think ourselves *honestly* Christian and followers of Him who enjoined us, "Love your enemies," "resist not evil," "bless them that curse you."

And one word more, brethren: Let us delay sending our missionaries to China and Africa for the present, lest those *heathen* heathen, there, be disturbed in their estimate of our superlative Christian virtue by the sight and forbidding presence of the war-ships of England, Germany and Russia, whose bristling cannon stand ready to preach another doctrine than that spoken on the Mount. It would be unfortunate if the enlightenment of these "heathen" minds would be delayed by their comparison of Christian precepts with Christian practices. We had best keep the missionaries right here at home for another eighteen hundred years or so—or until we have learned to read our Christian Bible; and in the meantime, until we have licked Spain, they could be profitably engaged in moulding bullets, in furtherance of Christian warfare.

——There goes the last bell, and I must hurry to church, where I hope to hear the parson pepper the Spaniards. Here's hoping that our noble ships are heavily plated on the "right cheek" when it comes time to be "smitten" with a thousand-pound projectile, and that we may have big enough a gun, and good enough an aim, to puncture the cheek of the other fellow in return! And while the sentiment *isn't* Christian, but is savage and pagan, it goes trippingly off from my "Christian" pen and will find echo in the hearts of my "Christian" readers. Selah!

---

### A Relic of Hard Times.

Two strangers, seated side by side in a car, opened up conversation.

"What's your line?" asked one of the other.

"I'm in the fruit-growing business—peaches, principally, and cherries and the like. Where do I sell my stuff? Well, I crate it up and get it to the nearest market, so that it don't get overripe.

"But if it *don't* sell?"

"I'm fixed for *that* possibility. I've put up a ramshackle building, filled it with kettles, got a big stock of tin cans—and there you are."

"I see—you sell what you can, and what you can't you 'can.' Is that right?"

"Well, that's *just* right—ha! ha! But say —what's *your* line?"

"I'm a drummer for a wholesale jeweler. I take orders from my samples."

"Well, that's a blamed sight better than the fruit business, I reckon."

"I don't know about that. Let us see: You sell what you can, and what you can't you 'can.' Now, *I* sell what I can, and what I can't sell I '*cancel*.' See?"

"I see—and the cigars are on *me*."

---

The time for honest folks to be abed
Is in the morning, if I reason right;
And he who can not keep his precious head
Upon his pillow till it's fairly light,
And so enjoy his forty morning winks,
Is up to knavery, or else—he drinks!

Thompson, who sung about the "Seasons," said
It was a glorious thing to rise in season;
But then he said it—lying—in his bed,
At 10 A. M.—the very reason
He wrote so charmingly. The simple fact is,
His preaching wasn't sanctioned by his practice.

So let us sleep, and give the Maker praise.
I like the lad who, when his father thought
To clip his morning nap by hackneyed phrase
Of vagrant worm by early songster caught,
Cried, "Served him right! 'tis not at all surprising,
The worm was punished, sir, for early rising!"

—John G. Saxe.

### The Fools of Yesterday.

"He is a fool: let us have none of him." So spake the multitude, in the very beginnings of human society, whenever one of their number stepped out of the beaten track and wandered into the wilderness, bent on discovering new ways. So speaks the mob to-day. Every yesterday has had its crop of fools, in the estimation of yesterday's people. But the fool of yesterday is the sage of to-morrow.

The penalty of opposing tradition, of standing out against the consensus of opinion, of attempting to prove false that which everybody accepts as true, is to be called a fool. In the early days such presumption led to martyrdom. The mob shouted "*Vox populi, vox Dei*," and killed the iconoclast speedily. But "the voice of the people" is *not* "the voice of God," in spite of the Latin proverb to the contrary. The fool of yesterday was eternally right, the majority of yesterday was eternally wrong. To be sure, it was uncomfortable for the fool: it generally ended in his expeditious murder. "God and one may be a majority; but crucifixion and the fagots may antedate the counting of the votes." On each morrow, however, the majority regularly came around to the notions of yesterday's fool, and built him a monument; in the meanwhile shouting "fool!" to the venturesome pioneer of its own day.

Twenty-four centuries ago the cultured Greece of Pericles worshipped the sun-god, "Apollo of the golden locks." Anaxagoras pulled down from the heavens this sun-god of the Greeks by declaring that the heavens were a solid vault and the sun was "a great stone on fire." It wasn't a bad guess, but Greece was not ready for it; so Anaxagoras was declared a fool and an infidel, was banished, and the wisdom of the majority was re-established for a time. Some thousands of years later, another fool, Galileo, was stretched on the rack of torture because he asserted that the earth moved around the sun; and an humble doctor was laughed at for a gibbering fool because he suggested that the blood circulated in the body; and still others were accounted fools in their day and generation because they proposed to print a book from movable types, or talk over a wire to a man in another city, or pull a row of carriages across the country by the use of steam, or prevent the spread of small-pox by inoculating people with cow-virus. Some of these fools lived long enough for the world to catch up with them, and were styled philosophers before they died; but they were the fools of yesterday, in their time.

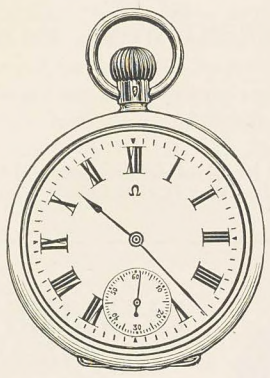
In our day invention crowds so closely on the heels of invention that we have learned to be broadly optimistic in our concepts of scientific and mechanical art. We are slow to call "fool!" to the iconoclast in the domain of the material side of life; for we have witnessed such stupefying wonders of mechanical invention that we have come to believe anything possible. The man who proposes a flying-machine is now conceded to be very far from a fool; and we accept at once the possibility of excursions to the moon on an exact time schedule. But the air is still full of the majority's cry of "fool!" toward the hapless projectors of new theories in the speculative sciences and the domain of pure thought. Let us edge away from the over-wise majority, lest our ghosts come back to our grandchildren, imploring them, "Write me down an ass"; for to-day's fool, like the fools of the yesterdays, may be the guide and comfort of our grandchildren's time, and our cry of "fool!" may work the undoing of the respect of our posterity. J. T.

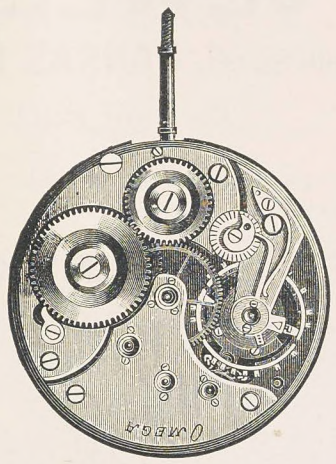
# OMEGA WATCHES

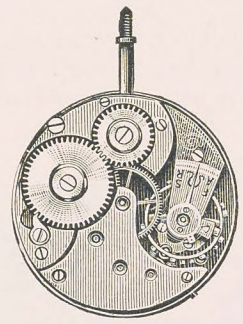
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*Over 1,000,000 in use.*

*Sold only to legitimate jewelers.*







**Made in five different grades.**
**Pendant set, 16 and 0 size, fitting Waltham Cases. All parts interchangeable.**
**Every Movement warranted.**

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3 Maiden Lane, NEW YORK.

*CROSS & BEGUELIN,*
17 Maiden Lane, NEW YORK.

*SOLE SELLING AGENTS.*

*Send for Price-List.*

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Buy your goods where you can actually get the newest and most attractive designs.
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**Patent Cluster Settings.**
**Gallery Settings,** both ornamental and plain.
**Continuous Setting Stock** and a full line of **Jewelers' Findings.**

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A few new attractive articles properly displayed act as

**A WEDGE**

during dull seasons to open up avenues of trade in good seasons later on

THE QUEEN CITY SILVER CO.
933 to 941 FILLMORE STREET
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**Medals** CLASS PINS AND CLASS RINGS **Medals**

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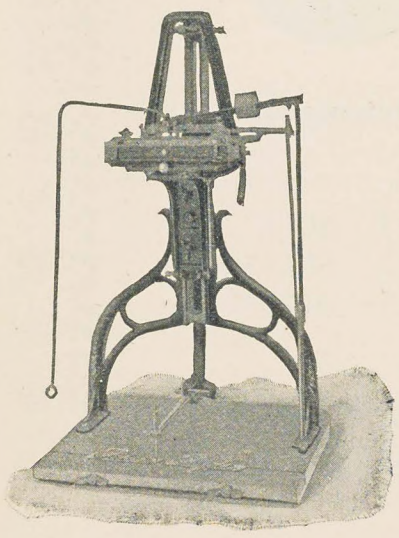
1016 & 1018 Main Street, KANSAS CITY, MO.

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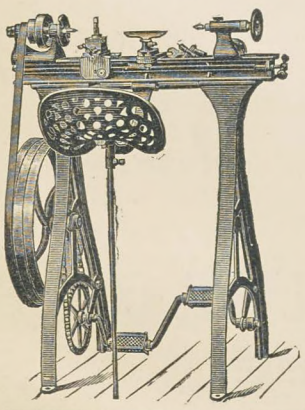
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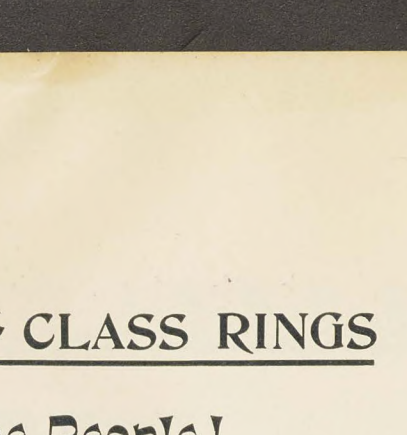
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## Kansas City and the Great Southwest.

Present conditions are scarcely favorable to any great amount of business activity. Trade in February held forth great promises of improvement. In March it languished somewhat. The war cloud was but a speck on the horizon. But April has brought about changes. The war cloud, like a huge funnel-shaped cyclone in the sky, seems to threaten death and destruction to the business interests of the community. For this reason trade is dull with us at the present writing, but general trade in Kansas City has been fair the past month, and our jobbers are rather busy. We are enjoying a big boom in building lines, over 500 residences having been built, (or are in the course of construction at the present time) since February 1st. A most creditable showing, and a sign of true substantial progress.

E. E. Hoffman, of Springfield, Mo., is in Texas, looking for a location to embark in business.

W. E. Hoefer, traveler for the Edwards & Sloane Jewelry Company, was at headquarters a few days last month.

C. H. Cox, for a number of years connected with the Meyer Jewelry Co., has gone totally blind.

W. H. Claus has accepted a position as watchmaker with Jeweler J. M. Earp, of Lamar, Mo.

Dick Kolstad, of Pleasant Hill, Mo., has been enjoying an outing the past month at a cattle ranch down on the Panhandle of Texas.

W. Lauch, for several years watchmaker for J. M. Earp of Lamar, Mo., has gone to Hampton Roads, Va.

Jeweler C. A. Clement, of Springfield, Mo., who has been in poor health for some time, is now recuperating at Hot Springs, Ark.

At last accounts Jeweler W. E. Palmatier, of Oberlin, Kan., was not expected to live. Mr. Palmatier has been in bad health for some little time past.

M. M. Hertzstein, Talmage, Neb., is holding an auction sale.

E. I. Dwelle, of Independence, Kan., has purchased the business formerly owned by J. A. Johnson, of that place.

A. J. Carruth, the popular well-known jeweler of Herington, Kan., was in town last week on a purchasing trip.

J. B. Carter, of Odebolt, Iowa, was in our city last week on a purchasing trip.

J. S. Burson, formerly in the jewelry business at Harrisonville, Mo., has accepted a position as watchmaker with D. E. Ketcham, Golden City, Mo.

T. S. Terry has moved into the location formerly occupied by C. T. Clingenpeel, at Downs, Kan.

Jeweler G. S. Catchadel, of Superior, Neb., has been attending Dr. Hamilton's optical lecture course for the past month.

Harry Manifold, of Beloit, Kan., spent a few days in the city last week. From here Mr. Manifold made a trip to Chicago.

E. Hostetter, Garden City, Mo., a popular jeweler, was in town a few days last month, making purchases for his home store.

Harry Gamenthaler has opened up a new store at Pattonsburg, Mo. This is something that has been needed in that town for some time.

Walter Sperling, that jovial jeweler of Seneca, Kan., was in town last month, attending a meeting of the Elks. He is as fat, jolly, and young as ever.

R. J. Gilbert, of "Jaccards," is in New York on business.

C. H. Hess, of Woodstock, Hoefer & Co., is smiling and happy. While passing around the cigars he informed us it was a girl, and that it was a new arrival at his home.

C. A. Kiger is out on the road, hustling business.

Charles Manor, the auctioneer, has just returned from Memphis, Tenn.

George H. Edwards, of Edwards & Sloane Jewelry Co., made a short trip out in Kansas last month on business connected with his firm.

T. J. Turner, 918 Main Street, has repainted and repapered his place of business, and now has one of the neatest stores in that vicinity. Mr. Turner completes this month his twenty-ninth anniversary as a jeweler in Kansas City, having been in business here longer than any other jeweler in the city.

The statement in the April KEYSTONE that W. E. Fenstermacher, Solomon, Kan., had sold out, was erroneous. He is prospering in his present location and entertains no idea of selling out. He has a fine stock and does a good cash business.

Arthur H. Clark, of the material department at J. A. Norton & Son's, was married last week to Miss Maud Winter. We extend our best wishes.

F. C. Helt, of Trinidad, Colo., recently spent a few days in Kansas City, getting ideas as to a location. Jeweler Helt has sold his business in Trinidad to Harry Davis.

Otto Burklund, of Ossawatomie, Kan., paid us his usual monthly visit of a day last month. We would like to hold him longer, but he says "he can buy all he wants in a day."

J. R. Mercer, of "Petticoat Lane," East Eleventh Street, has just completed his spring "cleaning up," which consisted of repainting, repapering and rearranging of his stock.

F. W. Meyers' store presents a very handsome appearance since being repapered. Mr. Meyer has a fine location and an excellent business.

C. B. Norton, of J. A. Norton & Son, and wife, spent a week visiting relatives in Blue Springs and Bertrand, Neb., last month. He reports an excellent and enjoyable time.

W. T. Brown, doing business in Nickerson and Newton, Kan., was in town last week. Mr. Brown made liberal purchases for his new store, which he will open at Sterling, Kan. It is his intention to remove the stock of his Newton store to Sterling. This will give that town what it has long needed, a first-class, "up-to-date" jewelry store.

Ambrose Melluish and wife, of Ottawa, Kans., recently spent a few days in the city, visiting relatives and friends.

C. W. Babbage, of Junction City, Kan., has joined the rush for the Klondike regions.

George Hosier, of Cady & Olmstead, has left for his ranch in Texas.

W. S. Evans, of Hiawatha, Kan., has returned to the Klondike, and will open up a jewelry store at Dawson City.

Harry Sloane, of the Edwards & Sloane Jewelry Co., has taken to riding a wheel. Mr. S. has had a number of narrow escapes, but in time hopes to tame his wheel.



A HANDSOME LOVING CUP.

Fred. Ackenhausen, formerly located in the "West Bottoms," has removed from that city and opened up a new store at Perry, Okla.

C. T. Clingenpeel, formerly in business at Downs, Kan., has removed his stock to Stockton, Kan., where he has opened up a new jewelry store.

Max Schoeman, for a number of years with H. Oppenheimer & Co., is contemplating a trip to Europe.

J. A. Wilson reports that one day last week a colored man came in his place of business and after having been shown several watches picked out one, and remarked, "I'll take this one." He did so, and ran. The man was captured, and is now languishing behind the bars.

J. Dunn, formerly with the C. L. Merry Optical Co., but now with the Spencer Optical Co., New York, is in the city, calling on the trade.

The Meyer Jewelry Co. have completed repairing their shops.

E. Campbell, of Campbell Bros., East Twelfth Street, is the gunner of Battery B, and is looking forward to being at the front if hostilities break out with Spain.

Harry Finkelstein has opened a new store at Northwest corner of Missouri Avenue and Main Street.

H. K. Herbert, of Eldorado, Kan., is happy over a new arrival at his home.

Gus Burklund, of Osage City, Kan., has added to his jewelry stock a fine line of cut-glass and china. He now occupies the entire store-room.

### A Beautiful Sterling Silver Cup.

The handsome and imposing cup here shown was designed and executed by Simpson, Hall, Miller & Co., Wallingford, Conn. It was ordered for presentation to State Senator Thomas F. Grady, of New York, by a number of his Tammany friends. One hundred and thirty-four ounces of sterling silver were used in the manufacture of the cup. It stands eighteen inches from the base to the top of the handles. The diameter of the body is about twelve inches, and is *repoussee* finished. The ground work of the chasing is a design of oak branches, the acorns and leaves being brought out in bold relief. On one side of the body of the cup is a seven-inch profile of an Indian with feather headdress, symbolic of the chief of the Tammany tribe. Below is grouped the Indian's implements of war. These are just above, clasped hands significant of the Friendship of Tammany.

On the opposite side of the cup is a reproduction in silver of the photographs of Hon. Thomas F. Grady and sixteen well-known Tammany leaders.

The base resembles the sturdy oak branches intertwined. The hands apparently emerge from the base, and these, too, are the oak branch and extend to the top of the cup. Surmounting each handle is a large tiger's head in gold, the emblem of the organization. The exterior is finished in old silver, which gives it a beautiful effect, and the lining of the cup is of gold. The cost of this work was over $1000.

## Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

*"Ammonia."—I have a mirror that has had ammonia on it, which left the surface smoky; what can I use to restore the polish?*—Ammonia, plain and simple, should not injure the surface of a mirror, that is, if applied to the surface of the glass; if the ammonia touched the silvered side there is no remedy except to have the mirror recoated, which would not pay. The glass surface—that is, the front of the glass—can, if only depolished and has no scratches, be restored by rubbing with putty powder (oxide of tin) and water. The putty powder is applied by means of a very fine piece of woolen cloth folded over a wooden block to present a flat surface.

*"Gold Testing."—On page 692, September, 1897, Keystone, you give formula for a testing acid for fourteen karat, but nothing finer. Are we jewelers to understand that the same acids are to be used on higher grades than fourteen karat? A New York concern sends out two kinds of acids for gold testing, one white and the other yellowish; the latter being for eighteen karat and above—the white for lower grades. But they give no formula for preparing the acids and I would like to be able to mix my own acids.*—Testing gold with acids is much a matter of experience and good judgment. Any acids you can buy will vary a little in strength, consequently it is well to buy a comparatively large quantity, and keep on hand to mix when wanted. As, for instance, buy four ounces of chemically pure nitric acid and four ounces of chemically pure hydrochloric acid, and keep them especially for testing gold. These acids should be kept in a dark closet, as a strong light affects them materially. For testing low karat gold employ following mixture: Nitric acid one ounce, hydrochloric acid fifteen minims, water two drams. This acid mixture will attack any gold below nine karat. For eighteen karat and over: Hydrochloric acid one ounce, nitric acid half ounce, water half ounce, common salt sixty grains. The mixture will attack all alloys of gold below eighteen karat.

*"Ornamenting Glass."—(1) How is the Roman color obtained on cheap, low-karat goods, say ten karat? Please give me a recipe for such coloring without a battery.*—Such Roman color on low-karat goods is usually done by electro-deposit. The usual method is called the one-cell deposit process. To prepare the gold solution, dissolve the contents of two fifteen-grain bottles of chloride in half a pint of distilled water or the water resulting from melting ice, and then add from a strong solution of cyanide of potassium enough to just throw down the gold as a brown sediment, and then dissolve it again. To Roman color with this solution, heat it to about 120° F. and hang the article in the solution by a hook made of a strip of zinc.

(2) *Why are watch hands painted at seventeen minutes past eight o'clock?*—It is often said that signs are so painted to mark the hour and minute Lincoln was assassinated, but the hands of watch signs were painted to this position long before Lincoln was born. The hands seem, in a sense, to balance in this position and leave a large space on the dial for the name of the maker.

(3) *I would like to know the best way to refine gold scrap and filings to fine gold; you gave a good idea of the process in some of the 1896 Keystones, but we have none of that year. At least tell us how to remove the soft solder, and probably we can get along.*—The best solvent for soft solder is the so-called soft solder destroyer devised by George E. Gee, the formula for which we have repeatedly published in THE KEYSTONE, and it can also be had on a printed slip which we furnish gratis to any of our subscribers on application to this office. For recovering the gold after the solder has been removed, see "Recovering Gold" and "Pinion," in another column.

(4) *Where can I buy copper wheels, such as they use for decorating glass?*—We do not think you can buy them, unless you employ copper washers, which you can obtain at any electrical supply house.

(5) *Where can I buy iridium?*—Bullock & Crenshaw, 528 Arch Street, Philadelphia, Pa.

*"Silver Plate."—I would like to know how plating is done on glass bottles and pearl umbrella handles. Both these substances are non-conductors, and I would like to know what substances are employed to make them conductive. I am aware that there are glass bottles made by the Gorham and other companies which are covered with some kind of paste where they do not want the silver deposited. What I want is to cover the entire bottle with copper or brass.*—The most efficient method of rendering glass or earthen articles conductive, is to burn in gold on the surface in the enamel painters' oven, but this process would undoubtedly be too expensive for your purpose. The process adopted by manufacturers of the kind of goods you refer to has probably been developed under carefully conducted experiments, the details of which have not been made public. Most of our text-books on electricity give formulas for rendering non-conductive surfaces conductive, but our experience supports the belief that the formulas given are very little to be relied upon. Graphite (black lead) is highly recommended by most writers, but it is a very inferior conductor as compared to any of the metals. We had occasion some few years since to need a conductive surface on a non-conductive body, and found the best process we could employ was to apply a very weak solution of masticated India rubber in turpentine to the surface of the object, and then apply a coating of copper bronze powder with a soft brush. This gave a bright coating of copper, which answered well as a conductor. The depositing solution was prepared by dissolving pure sulphate of copper in water from melted ice. The proportions were as follows: To a saturated solution of sulphate of copper, add one-quarter its volume of pure water, the water containing one-tenth its volume of sulphuric acid. Electric connection was made by setting the article to be coated on a plate of copper attached to the zinc pole of the battery by a copper wire. The article to be coated should be kept in constant motion. Any varnish which will take and hold the copper bronze powder will answer. The bronze powder must be applied dry and form a perfect metallic coating. Whatever varnish is employed, it must be very much diluted with turpentine or benzine.

*"Silverware."—Please give me the best way of removing scratches that silverware and watch cases are bound to get while in stock; also what buffs and composition to use when only a foot-power lathe is available.*—Anything like a deep scratch cannot be easily or quickly removed by mere rouge, no matter how the rouge is applied. We would say that a great deal of the deterioration of goods kept in stock comes from careless handling by those who care for them. We have seen repeated instances of people putting goods into the safe for the night, and really a hardware dealer would handle bolts and nuts with quite as much care. Scratches can be polished out, but it is much better policy to not let such scratches get on the goods at all. We have no hesitation in saying that four-fifths of the deterioration of goods in stock comes from lack of proper care on the part of those who handle them. We have noticed such carelessness so often that we cannot refrain from calling attention to it. We are sorry to say such rough handling is not confined entirely to the boys and inexperienced hands about the store, because we have seen the head of the firm throw and roll about silver-plated spoons and forks in a manner that would lead one to think that a high polish and freedom from scratches were but a secondary matter. We are aware that we are preaching the old lay sermon, which runs to the effect that "an ounce of prevention is worth a pound of cure"; but still the sin is so prevalent that we can but call attention to it, and suggest that every care should be taken to remedy the evil. Again, dozens of our jewelers, in showing goods, will lay out a highly polished watch case on the counter, placing it on a velvet or plush pad, out of which one could easily beat fifteen or twenty grains of sharp street sand which had drifted in through open doors and windows.

### Necessity of Care in Handling.

Some thinking will soon convince the most skeptical that the proper precautions are not used in handling highly polished goods. Stains from sulphurous vapors on silverware and low-karat goods can readily be removed by dipping in a solution of cyanide of potassium, employing two ounces of the salt to a gallon of water, adding more cyanide as the solution grows old and inactive. But the mere removal of stain does not entirely restore the polish; the goods have a bluish or milky look that only repolishing can remove. Care to avoid wear and scratches will lighten and expedite the labor of repolishing materially, but we warn our readers against indulging in any idea that repolishing, or indeed polishing of any kind, can be done without both skill and labor. We would also warn them against the use of any of the quack preparations like "Housekeeper's Delight," which instantly and without labor restore silverware to a mirror brilliancy, or "Moneymaker's Electric Polish," which the most stupid servant girl can use and in a moment make silver-plated spoons, forks and hollow ware "just like new." To take off all the frills and free-hand flourishes, and describe the operation of polishing, it can be defined as *the art of making surfaces perfectly smooth.* In effecting this result we must have resort to various mechanical devices, which extend in proper gradation from a coarse file to a rouge buff. The file removes asperities and brings down surrounding surfaces so as to cause hollows and other depressions to disappear; but the file leaves small channels and gutters in the surface of the article, in proportion to the size of the teeth of the file and the force with which it was applied. A finer file leaves a smoother surface—that is, the gutters and channels across the face of the article are neither as deep nor as wide. We have now taken the first step in the process of smoothing. In the next step of smoothing we shall employ some abrasive material like emery, carborundum, sand or pumice-stone powder. How these abrasives are used depends somewhat on the metal surface we are smoothing, and also on the particular result we wish to obtain. If steel is the metal operated upon, much of the operation of smoothing can be conducted dry. If brass, German silver, coin silver or gold is to be dealt with, the finer grades of abrasives are usually mixed with oil or tallow. If we will take the pains to investigate the action of abrasives we will find them all to act by cutting channels in the substance acted upon, in a manner similar to the teeth of the file with which we first commenced the operation of smoothing. It stands the artisan in hand to study the form of the particles of different abrasives and the peculiarity of their individual action.

### Action of Emery.

Take emery, for illustration. This substance has a tendency to break into bits, presenting several angles, like cubes, which, by means of sieves, are assorted into grades of nearly equal size of grain, as we find emery on the market. In forcing the grains of emery over a metallic surface we are smoothing, each grain scores a fine channel or groove across the face of the metal; or an angle of a grain of emery catches, and the individual grain rolls over, leaving tiny fragments of emery embedded in the surface of the metal. Even hardened steel will permit minute atoms of emery to embed themselves in this way. But it is the softer metals which receive in a dangerous degree such embedded particles of emery. Hence the use of emery is to be distrusted in the smoothing of all metals like brass, silver or gold which are to be finally finished with a mirror polish. Particles of emery embedded in steel surfaces can be removed by rolling over and patting it with the soft part of bread worked into a putty-like mass. With the softer metals, like brass, etc., where emery has been employed in the operation of finishing, bread crumb will not remove the embedded particles, but recourse must be had to softer abrasives, like tripoli and rotten-stone mixed with oil. By the use of these substances, especially where they are used with a stiff rotary brush, emery particles can be brushed out. In using all rotary brushes and soft buffs, care must be taken not to round the angles and destroy the graceful form of the object being polished. This end is only achieved by keeping our mind attentive to what we have to accomplish. The part of the operation of perfect smoothing performed by the rotten-stone and oil is to remove all scratches, leaving a sort of half-polished surface, which, if we should inspect with a high-power microscope, would show innumerable fine lines, crossing each other in every direction. Abrasive materials like tripoli and rotten-stone, the two substances being very much alike, do not present sharp angles like emery and carborundum, and their action in smoothing produces very shallow scorings or lines, which are not very difficult to polish out with rouge.

### Producing a Mirror Polish.

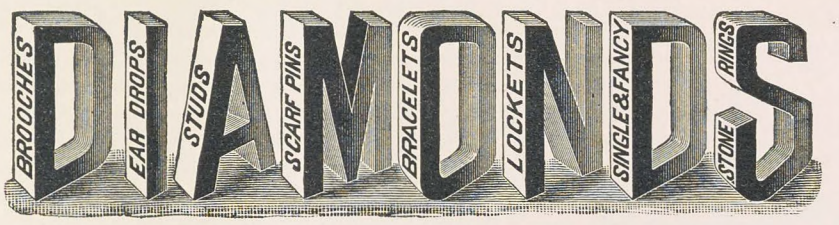
Now comes the most critical and still the simplest part of producing a black or mirror polish. Let us here understand what a black or mirror polish means. It simply implies that all rays of light striking the surface are reflected. A milky look indicates that the surface of the metal retains some of the rays of light which strike it, and they are given off as diffused. After the metal surface is smooth to the full extent of the action of tripoli and oil, comes washing with soap and water, and it is to the perfection of this washing that our success in producing a perfect polish depends. A little thought will show us that to *perfectly* wash a piece of metal, say a watch case, is not so easily done. There are the joints and crannies to be entirely freed from every trace of grease, because grease means rotten-stone, and the presence of rotton-stone means no black or perfect polish. At this point we are liable to realize what so many workmen have experienced, that is, failure. A trace of the rotten-stone and oil has got on to the brushes and buffs with which we use the rouge; and instead of that perfect polish we see on goods from the best factories, we see the blue, milky look which makes the ambitious workman's heart ache. In truth, it is a difficult task to wash perfectly and absolutely clean a watch case which has been brushed with rotton-stone and oil. The operation of washing clean cannot be done with the case-springs left in the case—these must in every instance be removed. The dish in which the washing is done must be absolutely clean; no smears of fingers loaded with grease and rotten-stone must be allowed. The soap must be free of rotten-stone and oil; the washing brush ditto. Every part of the lathe which the hands touch must be carefully wiped with a cloth wrung out of hot soapsuds, and then wiped dry with a clean cloth. Without all these precautions the achievement of first-class polishing is hopeless. One might just as well attempt to combine the business of blacksmithing and laundry work. The first part of the rouge work, that is, after the rotten-stone and oil has been washed away, can be done with bristle brushes and rouge, which comes in sticks or tablets.

### The Final Polish.

The final polish is best produced by cotton-flannel buffs, using soft rouge wet up with gin. Why gin is better than a mixture of alcohol and water we do not profess to know. Perhaps the slight trace of oil of juniper in the gin may have some influence. Walrus leather, bull-neck leather and elk-skin are lauded for buffs; but buffs made from cotton-flannel will produce a fine black polish if the precautions we have named are faithfully observed. There is a marked difference in cotton-flannel, some kinds seeming to have a fine grit incorporated with it in the manufacture, probably arising from the water employed in washing the yarn from which the cloth was woven. There has been a good deal of discussion as to the best oil to employ with rotten-stone or tripoli. The fact is, almost any oil will answer; indeed, ordinary kerosene does splendidly, the only objection to it being that it is extremely difficult to wash off perfectly with soap and water, and consequently has about it the taint of danger to which was called such marked attention above. We have heard glycerine spoken of very highly for using with rotten-stone, and see no objection to its use except the extra cost, which should not count in a case like the one we are considering. This substance readily washes away and leaves no smear. A good quality of glycerine can be had for fifteen cents a pound when the containing bottle is returned to the wholesale druggist. Silverware and low-karat gold goods should be lacquered with collodion lacquer, which is absolutely invisible after drying. The method of polishing with a foot lathe is no different than with a power lathe, except one cannot do as much work. Of course it is not necessary that goods which are not scratched should go through the process of rotten-stoning, but they should not be spared the washing, because grit and dust will accumulate on goods even in a show-case; and if such grit once gets into a rouge buff, good-bye to all first-class polishing with it. All rouge buffs and brushes should be kept in a dust-proof box, and only be handled with absolutely clean hands. Any workman who will carry out these instructions to the letter can do black polishing.

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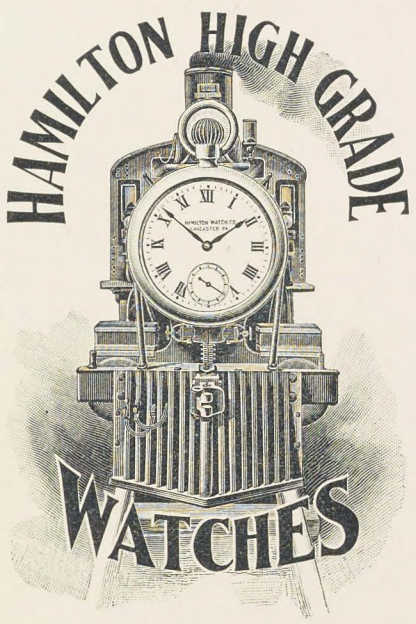



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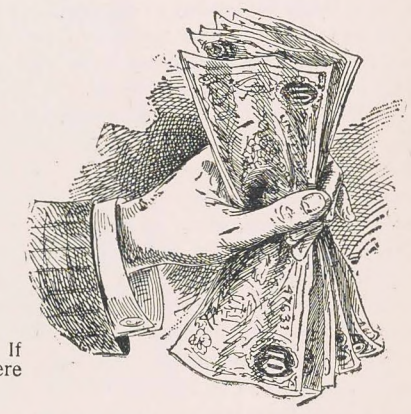

# Speaking of Railroad Watches




The following statistics are taken from the report of Mr. H. S. Montgomery, General Watch Inspector of the A., T. & S. F. Ry. Co., and will doubtless be of more or less interest to the trade. The total number of watches in use on the system is 1,315. During the year, 688 or fifty-two and three-tenths per cent. were condemned. The following table shows the kind and number of watches in use, the number condemned, and the percentage which failed to pass the examination:

| | IN USE | CONDEMNED | PER CENT. |
|---|---|---|---|
| **Hamilton** | **25** | **6** | **24** |
| Elgin | 369 | 207 | $56\frac{1}{10}$ |
| Waltham | 613 | 172 | 28 |
| Hampden | 141 | 111 | $78\frac{7}{10}$ |
| Howard | 51 | 20 | $39\frac{2}{10}$ |
| Columbus | 31 | 41 | $132\frac{2}{10}$ |
| Rockford | 20 | 46 | 230 |
| Illinois | 18 | 16 | $88\frac{8}{10}$ |
| Ball | 13 | 4 | $30\frac{7}{10}$ |
| Swiss | 9 | 12 | $133\frac{1}{3}$ |
| Gruen | 6 | ... | ... |
| Peoria | 5 | 28 | 560 |
| United States | 4 | 3 | 75 |
| Paillard | 3 | 5 | 166 |
| Seth Thomas | 1 | 3 | 300 |
| Tissot (Swiss) | 1 | 1 | ... |
| Aurora | 3 | 13 | 433 |


# There's Money In Engraving



if you have thoroughly mastered the art. If you do not engrave, or only imperfectly, there are dollars for you on every page of the

**HAND-BOOK OF LETTER AND MONOGRAM ENGRAVING ON METAL, by Cellini, Jr., and**
**PIVOTS AND PIVOTING, by The Lightning Pivoter,**

both in one volume, which contains eighty pages, giving practical instructions in the art of metal-engraving and pivoting. It also contains useful formulas for the watchmaker. Costs only **50 Cents.**

**THE KEYSTONE, 19th & Brown Streets, Philadelphia, Pa.**

# Would you like to become a thorough Watchmaker, Engraver and Optician?

## READ THIS:

Bangor, Pa., April 22, 1898.
Philadelphia College of Horology.
Mr. F. W. Schuler.

Dear Sir: Having completed a three months' course at the Philadelphia College, it gives me great pleasure to testify to the skill and ability of its instructors, and fully recommend it to any one contemplating taking a course in either watchmaking, engraving or optics to seek no further, as my experience of thirteen years in the jewelry business convinces me that that institution is justly entitled to what they claim for it, namely: Few equals and positively no superiors.

Very truly yours,
WILSON STECKEL.

Lowville, N. Y., April 22, 1898.
Prof. F. W. Schuler.

Dear Sir: I am more than pleased with my course in engraving, watchmaking and optics, and can cheerfully recommend your college to any one who wishes to learn all branches of the jewelry and optical business. I consider it the best horological college in the United States, for the simple reason that there are so many students there from other horological schools, coming to the above college while I was there, to complete their course. Another great point is that men who have had years of experience in the jewelry business come to your college for instruction, so if they are benefited and receive the instruction that they want in a thoroughly practical manner and leave the college well satisfied, then what must it be for the beginner who has not had any experience whatever? I must say that I have gained more knowledge in the short course I took than I expected to learn in twice the length of time. Thanking you for the great favors you have done, and for the thorough instruction, and wishing you abundant success, I remain,

Yours very truly, T. GASSER.

**We have many such as these.**

## YOU CAN

by attending our College

## NOW

We will guarantee you success.

**Our Motto:**
**We have few equals and positively no superiors.**

Send a postal for our new prospectus, just issued.

**The Philadelphia College of Horology,**
**1213 Filbert Street, Philadelphia.**
**F. W. SCHULER, Principal.**

## Chicago News.

WESTERN BUREAU OF THE KEYSTONE,
ROOM 811,
COLUMBUS MEMORIAL BUILDING,
CHICAGO, April 25, 1898.

The continuance of agitation caused by foreign complications has had its effect upon the jewelry and kindred lines the past ten days, inducing conservatism in the purchasing of goods and in embarking in new enterprises. There is still, however, a fair business, which, on the whole, is ahead of April last year. Now that the suspense which has been hanging over the country, and which has been anything but beneficial to trade, has come to an end, and the worst has come to pass, leading men in the trade are of the opinion that it won't be long before business will resume its normal conditions, and that the West need have no fears for its commercial welfare. They believe that about the only drawback to business will be excitement. They also believe that the first blow may not be final; but even granting Spain the equality in equipment claimed, she has to do with what has been the fiercest fighting race, when once its blood is up, that history has ever known, and that it is the man behind the gun that wins.

"It is a fact," said F. A. Hardy, of F. A. Hardy & Co., "that the jobbing and retail trade have not been benefited by the disturbed state of the public mind the past few weeks. Business represents, in its present state of indecision and interest, about as quiet conditions as is possible, even with war in actual progress. All the uncertainties of expression, actions or conclusions which have filled the columns of widely-circulated journals since the *Maine* disaster, have had the natural result of influencing the minds of the merchants as well as the people at large, until the progression of business methods and commercial success have been relegated to the rear. Now that the question is settled, and war has been declared, I feel that after the first few weeks of panicky sensitiveness have passed we can expect that the excited feelings of our business men, and the people in general, will give place to the accustomed labor inseparable from successful prosecution of their vocations. I do not think it will be long before trade will again be in a normal or natural condition."

"Now that war has been declared against Spain," said A. C. Becken, "I want to see the United States move and move sharply. The North American continent should be kept free of Spain's cowardly policy of starvation—a policy that never has place in honorable warfare. The extent of the effect upon business of the war cannot be foretold, but I think war with Spain is not the serious affair that it would be with a more powerful nation, having a large navy and great resources. Even if the struggle should be somewhat protracted the United States should be able to conduct it with as little strain on the national vitality, and as little disturbance to general business, as Great Britain shows in its numerous engagements with inferior powers. As for myself, I am not at all apprehensive, and shall go along as though there were no war."

Lem. W. Flershem, of Lapp & Flershem, thought to what extent the war scare had retarded business was somewhat of a conundrum. "Certain it is," he said, "that the trade is better this spring than for any spring season in several years. What it would have been had there been no Cuban troubles, is where the conundrum comes in. What it will be, now that war has actually begun, is another proposition that is keeping a good many guessing. It is my opinion that trade will be stimulated for the first few months. This will be particularly so in the Western country. In all probability, the only effect war will have on this part of the country will be to raise the price of farm products, and that will be beneficial to business."

Reports from the Northwest are that wheat seeding has made excellent progress; in fact, is about finished, and that the acreage is larger than last year. There is complaint from some sections because of dryness, and some counties in South Dakota have had severe dust storms. Indications are that the price of wheat will be favorable to producers on the next crop, because the surplus carried by all countries into the new crop next July will be the smallest, probably, in the history of the grain trade. There is not much reason to believe that the average of price on the next crop will be much below, if any, the average price to date on this crop, say around 90 cents.

Benjamin Allen, of Benj. Allen & Co., believes that whatever may be the other effects of the Spanish war, it is likely to benefit the agricultural interests of the United States rather than injure them. "As agriculture is our chief dependence here in the West," he continued, "I think the farmers and merchants of the Western country may rest secure as far as their business interests are concerned. I believe our heavy foreign exports will have to continue no matter what Spanish commerce destroyers may do against American vessels. They may have to be shifted for a time to foreign bottoms, but our food products must continue to go across the Atlantic, because Europe would go hungry without them. I also believe that after we get into open hostilities people will be so confident of a favorable outcome that business will move along without further interruption."

A well-known traveling salesman, who was returning from an extended trip in the Pacific Coast country, was met in this city during the first days of April. To THE KEYSTONE representative he said: "I do not care to repeat the experiences that I passed through in Seattle. We had to telegraph ahead for hotel accommodations there, and had we not done so it is doubtful if we could have found a place to sleep. I never saw a place so crowded before in my life as I found Seattle three weeks ago last Sunday. Why, the city was simply packed with a wild, crazy mob of gold hunters. Never before did I see money flow so freely. The outfitting firms there have just coined money. The Klondike rush has been a Godsend to Seattle, for before it began the town was beginning to show signs of a collapse. The residents there expect the rush to continue until June. I saw several different men beg and pray of the steamboat agents for accommodations on the boats which left while I was in the city. The berths had to be engaged many days ahead."

The Post-office Department at Washington has made a new ruling on printed return postal cards, which business men would do well to remember. The department decided that where postal cards have return addresses printed on them, the name of the business must not be printed after the name of the firm; if so, it will subject the card to one cent additional postage. You can print a postal card with your name on as follows; John Jones & Co., St. Louis, Mo.; but you cannot put on John Jones & Co., wholesale jewelers, St. Louis, Mo. Many merchants have already had postal cards printed like the latter, and they will now have to put a cent additional on the cards if they use them.

Bicycle factories are running overtime the past month, and seem to think it impossible to get enough stock on hand. It is noticeable that not many chainless wheels are being pushed at all. Several of the factories are reserving the chainless and waiting to see how they take. The reduced prices made on wheels promises to bring an increase of sales that will make the smaller profit realized as great in the aggregate as it has been at any time since trade got a fair start.

### Personal Mention.

Al. S. Wormwood, salesman for the Illinois Watch Company, Springfield, was a recent caller at the Western headquarters of THE KEYSTONE.

O. A. Hesla, formerly in the retail jewelry business as O. A. Hesla & Co., at 600 West Madison Street, but who sold out and went West on account of his health about two years ago, is now located at Prescott, Ariz., where he has acquired an interest in the business of George H. Cook, the well-known jeweler of that place. Mr. Hesla's friends in the trade will be glad to hear that he has recovered his health.

George A. Jewett, Chicago manager for the New Haven Clock Company, is now representing the Hamilton & Hamilton, Jr. line of chains and bracelets over the Western circuit.

A. N. Sperry, of the Sercomb & Sperry Company, is at his desk again after a six weeks' outing spent with his family on the Pacific Coast. This was Mr. Sperry's first trip to California, and he expressed himself as delighted with the country and climate. He tells us that he learned while there that this season's tourist travel was the largest ever known on the Coast and that general business in California seemed to be quite prosperous.

Thos. Y. Midlen, Chicago manager for the Gorham Manufacturing Company, is at his desk again after a two weeks' trip in the East.

D. H. Church, mechanical superintendent of the American Waltham Watch Company, Waltham, Mass., was in town a few days the early part of the month accompanied by Mrs. Church. They were in the West on a short trip of rest and recreation.

Will F. Juergens, of the Juergens & Andersen Company, sailed for Europe April 12th, on the *Kaiser Wilhelm der Grosse*, the record-breaking ocean greyhound, to be absent about six weeks. Mr. Juergens goes direct to the diamond marts of the world—London and Amsterdam—to make purchases for the firm's fall trade. Before leaving Mr. Juergens remarked that war or no war, his firm would import diamonds as heavily as usual, as they were expecting a lively demand for precious stones the coming fall.

C. M. Wells, of the American Optical Co., spent last week in Chicago on one of his regular visits to the trade.

A. N. Jacoby, house salesman for H. F. Hahn & Co., has been confined to his home for over two months past by a severe spell of sickness. He is now able to be about and expects to be soon regularly at his post again.

S. & B. Lederer and the Providence Stock Company, manufacturers, Providence, R. I., have moved their Chicago office from the fifth floor of the Adams Express Building to rooms 611 and 613 Columbus Memorial Building. Gus Rosenberg is the resident representative of the former firm and M. L. Jacoby of the latter.

Dr. H. M. Martin, president of the Chicago Ophthalmic College, is out of town this week on professional business.

Mr. Phelps, of the Merrick, Walsh & Phelps Co., prominent retailers, of St. Louis, was in the city last week and made some friendly calls on the trade.

H. C. Smith, of Smith & Gamm, Madison, Wis., accompanied by Mrs. Smith, was in the city this week en route home from a Southern trip. Mr. Smith is a sick man and went South upon the advice of his physician. His trip did him little or no good, and it was thought best to take him home.

Leo Wormser, of the Julius King Optical Co., New York, has been in town the past week. He is accompanied by Mrs. Wormser, and they were en route home from an extended trip through the West, going as far as the Pacific Coast. Mr. Wormser was in excellent health, and reports the Western country as prosperous and lively.

W. O. Kellogg has succeeded T. H. Purple as manager of the A. F. Towle & Son Co.'s Western office. Mr. Kellogg had been with the firm two years and previously was several years with E. Webster & Son.

John H. Hardin, manager at F. A. Hardy & Co.'s, leaves to-night for West Baden, Ind., Mineral Springs, for rest and recuperation. Mr. Hardin has not been in good health of late and feels the necessity for a short outing.

R. S. Heaton, of Heaton, Sims & Co., wholesale dealers, Indianapolis, was in the city the early part of the month, and made a pleasant call at the Western headquarters of THE KEYSTONE during his stay. Mr. Heaton informs us that trade has been fairly prosperous in Hoosierdom thus far this year.

Thomas A. Tripp, of New Bedford, Mass., well known in the trade as former treasurer and general manager of the Pairpoint Manufacturning Co., has been in the city for several days past.

L. M. Sturtevant, for a number of years connected with and latterly local manager of the Chicago office of the Pairpoint Manufacturing Co., has accepted a position with J. R. Davidson, manufacturer's agent, in the Silversmiths' Building.

W. S. Furman, formerly cashier in the Chicago store of the Pairpoint Manufacturing Company, is now representing several Eastern manufacturers in the jewelry line with an office at 807 Columbus Memorial Building.

H. B. Graves, secretary and treasurer of the Standard Optical Co., Geneva, N. Y., was in the city last week visiting the trade.

### Out-of-Town Visitors.

Seem & Rush, of Macomb, Ill., were represented in this market last week by Mr. J. K. Seem, the senior member of the firm, who was here on a purchasing trip.

W. A. Bowen, of Kewanee, Ill., visited this market the early part of the month, taking advantage of the Merchants' and Travelers' Association rates.

L. W. Otto, of Crawfordsville, Ind., was among the buyers brought here the early part of the month to attend the meeting of the Merchants' and Travelers' Association, and attend to some buying as well.

E. E. Chandler, of Boone, Iowa, who is a frequent visitor in this market, was in the city a few days the early part of the month on a purchasing trip. Mr. Chandler took advantage of the meeting of the Merchants' and Travelers' Association this trip, and warmly praises the advantages the Association affords dealers.

N. E. Benoit, of Rockford, Ill., was a welcome trade visitor in town last week.

C. A. McGregor, of Pontiac, Ill., was a recent buyer in this market.

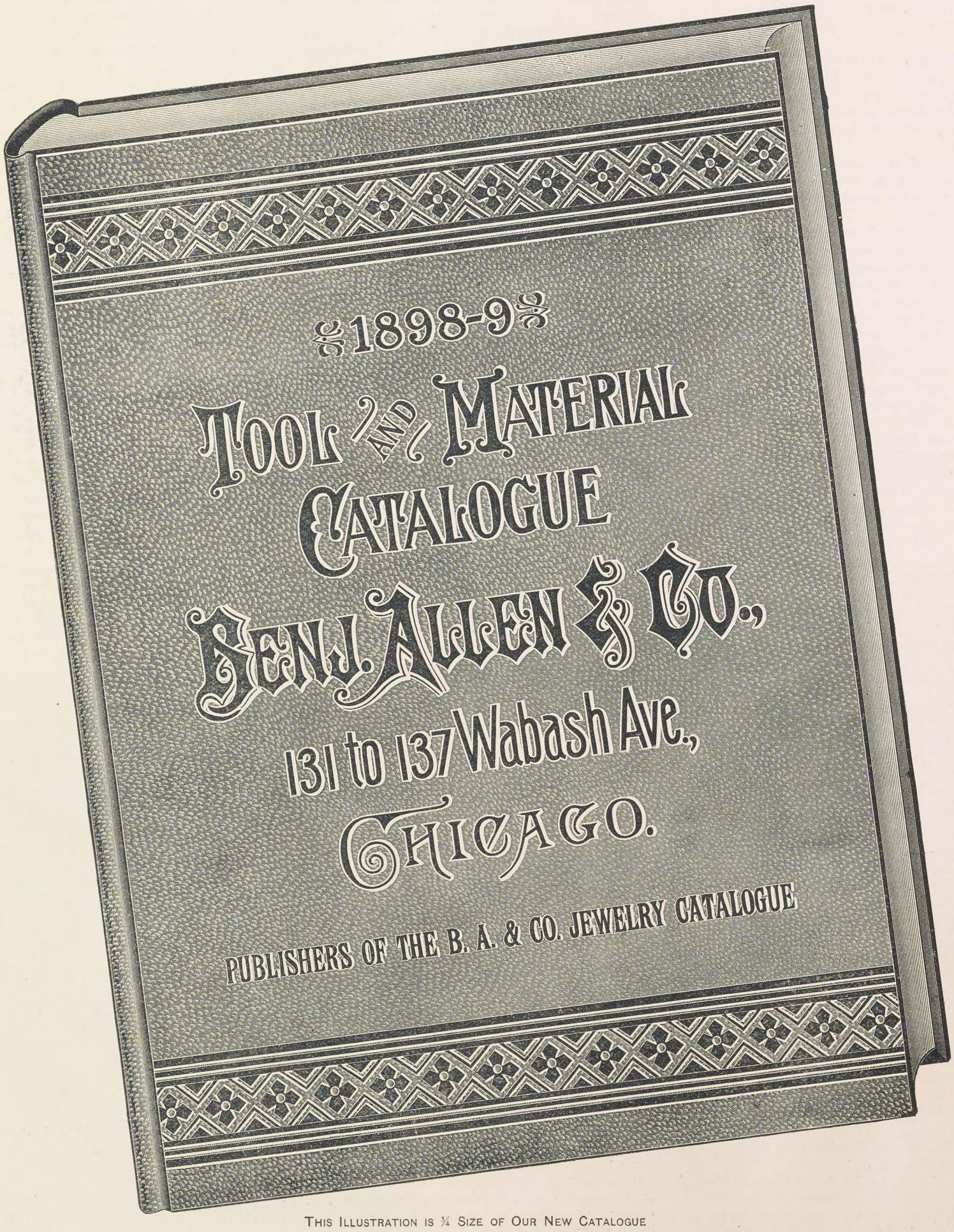
J. R. Schaeffer & Son, of Bloomfield, Iowa, were represented in this market recently by Mr. Schaeffer, Jr.

(*Continued on page 380 d*)

# NOW READY

We are sending out our New 1898-9 Tool and Material Catalogue. Every watchmaker should have one. It is the most complete book of the kind ever issued, and contains 640 pages, fully illustrated. It is handsomely bound in cloth, and printed on super-calendered paper of the best quality. Prices will be found to be the lowest.

To those who have not as yet received the book we will be glad to send a copy if they will write us for it.




THIS ILLUSTRATION IS ¾ SIZE OF OUR NEW CATALOGUE

## BENJ. ALLEN & CO.

Importers and Jobbers in Tools and Materials, and Wholesale Jewelers

The Silversmiths' Building, 131–137 Wabash Ave., Chicago

## Chicago News.

(*Continued from page 380 b.*)

Among the near-by jewelers who visited Chicago the week of the Merchants' and Travelers' Association were C. C. Lovell, Racine, Wis.; A. E. Trask, of Trask & Plain, Galesburg, Ill.; and F. C. Cook, of Janesville, Wis.

R. J. Henson, a well-known Southern jeweler, for a number of years located at Natchez, Miss., was in Chicago a few days the early part of the month on a purchasing trip.

John Albright, of David City, Neb., was among the number of Western jewelers who attended the March meeting of the Merchants' and Travelers' Association. Mr. Albright was combining business with pleasure in his trip, and was well pleased with the advantages the Association afforded him.

Jeweler W. E. Doan, of Elma, Iowa, took advantage of the rates offered by the Merchants' and Travelers' Association, and visited this market the early part of the month on a purchasing trip.

C. J. Dunbar, of Princeton, Ill., was in town buying goods, Merchants' and Travelers' Association week.

Julius Kahn, of Appleton, Wis., took advantage of the last meeting of the Merchants' and Travelers' Association to come to this market and select some of the latest spring novelties for the home store.

Stocking Bros., of Sharon, Wis., were represented in this market the early part of the month, by B. R. Stocking, who was attracted here by the meeting of the Merchants' and Travelers' Association.

Conrad Koch, jeweler and optician, Davenport, Iowa, was in the city recently taking a course of optics. He made a pleasant call at KEYSTONE headquarters during his stay.

Jeweler S. Joseph, of Des Moines, Ia., passed through Chicago early in the month en route to Germany on a visit to his old home. He will be absent three or four months. He was accompanied by Mrs. Joseph.

Will Hamill, son of Jeweler H. C. Hamill, of Marquette, Mich., was a trade visitor in this market early in the month.

Frank Pequegnat, of St. Louis, Mich., was in the city recently on a purchasing trip.

S. L. Potter, of Leaf River, Ill., was a trade visitor here recently.

Frank E. Fee, of Hartley, Iowa, was a buyer here recently.

C. D. Mallatt, of Fair Oaks, Ind., was a buyer in this market recently.

Jeweler William J. Iliffe, of Red Lodge, Mont., has been in the city the past month pursuing a course of optics at the Northern Illinois College of Ophthalmology, under Dr. J. B. and G. W. McFatrich. Mr. Iliffe is a bright man, full of Western energy and enthusiasm, and has gone into optics as only a man of his make-up can. Mr. Iliffe was a congenial caller at KEYSTONE headquarters during his stay in town.

D. L. Thomson, of Grand Rapids, Mich., was in Chicago a few days the early part of the month on a business trip, attracted here by the last meeting of the Merchants' and Travelers' Association.

Jeweler A. E. Elbe and wife, of Bloomington, Ill., paid a visit to the Western Metropolis during the week of the meeting of the Merchants' and Travelers' Association.

R. L. Powers, of Grant City, Mo., was met in one of our wholesale stores the early part of the month. He was buying liberally, and expresed himself as pleased with Chicago as a market and the advantages that the Merchants' and Travelers' Association afforded dealers in the way of transportation.

O. Hartman, of Wapakoneta, Ohio, was in Chicago for a day or two the early part of the month, making purchases for his spring trade. He was among the jewelers brought in by the Merchants' and Travelers' Association.

A. H. Fisk, optician, Galesburg, Ill., was a trade visitor here recently.

The well-known jewelry firm of Clark, Giddings & Co., of Sterling, Ill., were represented in this market the early part of the month by Mr. Clark, who credits the Merchants' and Travelers' Association with bringing him to Chicago this time, though the firm members have been frequent visitors in this market for years.

Among the well and favorably known jewelers of this State that the meeting of the Merchants' and Travelers' Association brought in the first week of the month was Henry Birkenbusch, of Pekin. Mr. Birkenbusch is always a welcome buyer in this market, as he has been a frequent visitor here for years past.

Emil Reunand, of Jules Reunand & Sons, Keokuk, Iowa, was a welcome trade visitor here recently.

Fred. H. Michelson, of Grand Island, Neb., was a recent trade visitor in Chicago.

The firm of Eustis Bros., Minneapolis, Minn., was represented in this market last week by Charles Eustis, who was in Chicago on business.

Lee L. Alnutt was in town last week, selecting an opening stock for a new store he is opening up at Chillicothe, Mo. Mrs. Alnutt accompanied him.

Martin Van Buren Elson, for twenty-five years a leading and successful jeweler at Freeport, Ill., and one of the best-known dealers that visits this market, has sold out his store to his head workman, Mr. E. Bingston, who will continue the business at the old stand. Mr. Elson was met in one of our wholesale offices the early part of the month and said to THE KEYSTONE representative that he thought twenty-seven years of constant and close application to business had earned him a rest; that he had the opportunity to dispose of his business to a good party and had done so. He expects to spend the next two years in rest and travel, and live the rest of his years on the fruits of a most successful business career.

A. Zegda, of Spring Valley, Ill., was in the city last week, on a purchasing trip.

Geo. R. Dodson, of Spokane, Wash., is in Chicago this week on a business trip. Mr. Dodson tells us that trade has been prosperous at Spokane thus far this year, and that the outlook is encouraging. He said they had not felt the effects of war talk on trade in their country, nor did they expect anything of the kind.

E. G. Bowyer, of Algona, Iowa, a KEYSTONE subscriber for years standing, is in town to-day and called at Western headquarters. Mr. Bowyer tells us that the Iowa Retail Jewelers' Association will hold its next annual meeting at Webster City, May 10th, and that a good turnout of the guild is expected.

### Gossip Among the Trade.

When THE KEYSTONE representative saw Secretary Smith, of the Geneva Optical Company, the other day he handed out a letter with the remark, "I suppose you are responsible for this." Now, that letter had quite a genteel and intelligent printed heading of a firm of jewelers and opticians doing business at Johannesburg, South Africa, bearing date of March 5th, requesting a copy of their "new catalogue," as mentioned in a late issue of THE KEYSTONE. Mr. Smith said this was not the first request they had received for their new catalogue from the other side of the world, but that they had one each from India and New Zealand. Coming nearer home, several had been received from England and Germany, and still nearer home, several have come in from Manitoba and Northwest Territory. "The fact of the matter is," said Mr. Smith, "THE KEYSTONE must circulate to the ends of the earth, as it is simply wonderful the replies we have been getting from our catalogue 'ad.' in your March number. We receive from fifteen to twenty-five requests daily for our new book, each and every one saying 'they saw it in THE KEYSTONE,' and I want to assure you that there is no one about this establishment but what believes that your magazine circulates all right."

Chicago jewelers have been frequently asked of late if it is possible to make gold from base metals. This remarkable query springs up because the papers have been filled with accounts of a local concern called the National Metallurgical Company, of which Metallurgist Brice is the head, claiming to be able to transmute metals as the ancient alchemists tried to do. The concern has been organized to share the Brice secret and to reap the profits accruing from his "discovery," if there should be any profits. The stockholders are perpetually on the point of making enormous profits, but, somehow, never quite make connections. However, Mr. Brice has finally taken the dear public into his confidence and published his formula, which is as follows: Take of chemically pure antimony, 5 parts; sulphur, 10 parts; iron, 1 part; caustic soda, 4 parts. Mr. Brice has laid the jewelry and precious metal trade under an inestimable obligation by this unbosoming. According to his theory it will now be possible for any jeweler or chemist in the land, with these chemicals and a crucible, to become richer than Midas without effort. Klondike, Australia, California, and the other gold-bearing regions, are simply not in it with this proposition, which is easier than making bread or spanking the baby.

There will be surprise and much sincere regret in Western trade circles to learn of the failure of C. H. Knights & Co., one of Chicago's best and most favorably known wholesale firms. They made a general assignment in favor of their creditors to Homer B. Galpin last Monday afternoon. Their force are now at work on the inventory of their stock, which will be finished the coming week. Until then, complete particulars cannot be given. The general expression among the trade here is a hope that the firm will be able to early adjust its financial difficulties and resume business.

Robert Fechtner, retailer, has moved a few doors south of his old location, at 4852 Ashland Avenue.

Nordahl & Olsen, retailers, at Milwaukee Avenue and Halsted Street, will move, May 1st, to the corner of Milwaukee and Chicago Avenues, where they have fitted up a handsome store.

The Union Show Case Company have removed from 169 Randolph Street to their old location at 167 Randolph Street, second floor.

George Kuehl, the well-known Randolph Street importer of clocks, will exhibit a fine display of German cuckoo clocks at the Omaha Exposition, and has secured a prominent space in the Liberal Arts Building for that purpose. Theo. Kuehl, of this house, has only recently returned from a trip to Europe, where he secured a line of new and novel designs and combinations in these unique and popular selling clocks. Mr. Kuehl informs us that the new line will show improvements of practical value that will make the cuckoos more popular than ever.

The new tool and material catalogue of Benj. Allen & Co. is now being sent out to the trade. It is a large handsome book, copiously illustrated, and is beautifully printed on fine paper. The new catalogue contains 640 pages of mighty useful information for the watchmaker, jeweler and optician, and we do not see how an up-to-date jeweler can well get along without it. And they need not, for it is free to any dealer for the asking. Messrs. Allen & Co. are particularly desirous that those who do not receive their new book by May 20th will write for it.

The silver-plate ware manufacturers represented in Chicago will close their offices at 1 P. M. on Saturdays from April 2d to September 1st. The sterling manufacturers will observe the same time schedule in closing Saturdays, only they will continue it until October 1st. The watch and watch case companies will continue the same until September. The jobbers and kindred traders will close on Saturdays from April 30th to August 27th at the same time, and on all other week days during that period at 5.30 P. M.

The new "silver store" of H. D. Stevens & Co., at 96 State Street, which was thrown open to the public April 2d, we are pleased to note, is already doing a nice trade. The fixtures are mahogany, supplemented by a wealth of plate glass and electric lights. The store is small, but cozy and compact. It is very carefully stocked with goods culled from manufactories of national reputation. Mr. Stevens was for many years manager at Peacock's, and besides his large clientele of patrons, he brings to the enterprise, of which he is the head, a wide and varied knowledge of the business. The firm will devote their attention exclusively to manufactured silver goods.

### Obituary.

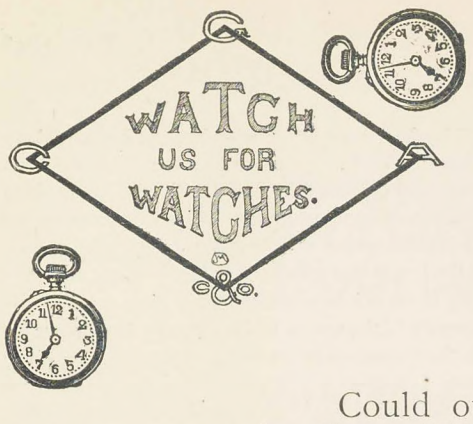


Edward Forman.

It is needless to say that the sudden death from pneumonia of Mr. Edward Forman, secretary of Spaulding & Co., Chicago's widely-known retail jewelry firm, produced a feeling of genuine sorrow wherever it became known. He had long been a prominent figure in the jewelry trade, and was personally known to a large number. He died at his residence, 2206 Prairie Avenue, shortly before midnight on April 14th. Mr. Forman succumbed to a brief attack, and it was not until a few hours before the end came that even the immediate members of the family believed his illness would terminate fatally.

The funeral services were held on the following Sunday afternoon, at Trinity Episcopal Church, Michigan Avenue and Twenty-sixth Street, in the presence of a large gathering of friends. The casket containing the remains was completely hidden by flowers, as was the altar. The Protestant Episcopal ritual for the burial of the dead was read by the Rev. Harold Morse, rector. The pall bearers

(*Continued on page 396 g.*)







# "Home, Sweet Home"

Could our watches talk, this would not be their song. They keep the ***time (ELGINS and WALTHAMS).***

## But,

they never have the ***time*** to get accustomed to their home with us, for by the ***time*** we have them ready for sale, the ***time*** has come when our friends take them from us.

## "Time and Tide," etc., etc.

If, perchance, you did not consider what we told you about the Kent & Stanley Co. goods in last month's KEYSTONE, ***'twill pay you to do so.***

## C. G. ALFORD & CO.

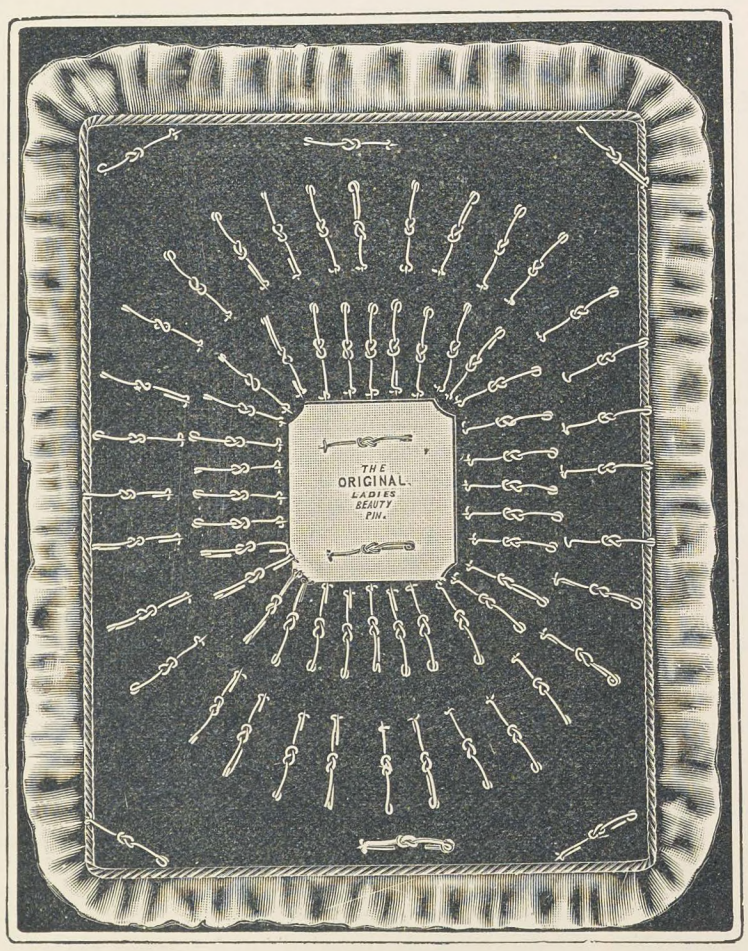
*May, 1898.* 195 & 197 Broadway, **New York**







# THE ORIGINAL LADIES' BEAUTY PIN.



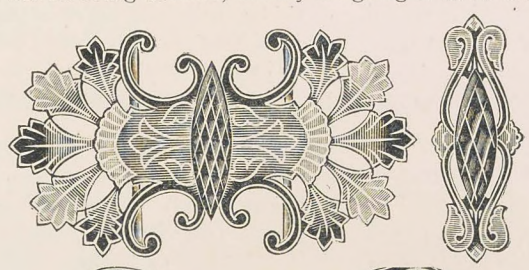

No merchant can afford to be without them. They are practical, handsome and adaptable. Made of one piece Seamless Gold Plated Wire, in three different styles. Put up three dozen pairs on a handsome white satin pad, with pretty border. Growing more popular daily, and every lady in the land wants them, and we expect to place them with every jeweler in the land. We have them to retail at **10 cts., 15 cts.** and **25 cts.** a pair, and last price also in sterling silver. We also have them in solid gold, Roman and polished, to retail at **$1.00** a pair.

### JUST RECEIVED

A direct importation from France of

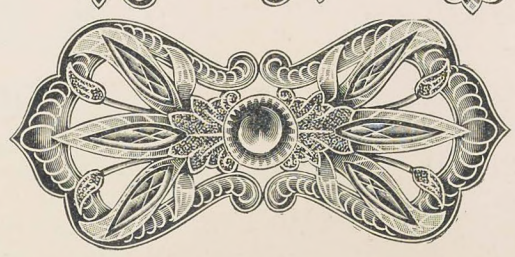
## *Belt Buckles and Buckle Sets,*

in genuine cut steel as well as in fine French enameled, ornamented with steel points and some without. Most of these patterns imported by us exclusively, and we are showing the largest line of these goods in the country. With the coming of warm weather they will be in big demand, as they are going to be all the rage with Summer Waists.



**No. 7499.** Highly enameled in colors, with cut steel centers, four-piece set. Rear ornament same as front clasp, with two slides to match. A work of art.

Retails for **$3.50** a set.



**No. 7640.** Highly enameled in colors. Buckle only, with cut steel ornaments and turquoise. Emerald, sapphire and garnet jewels. A rich design.

Retails for **$2.50** each.

Our line of ***Girdles, Ornamented and Plain Leather Belts, Chatelaines,*** and in fact anything pertaining to ladies' and men's wear, is the most complete in up-to-date goods. Write for a selection package. State as near as possible quantity and price desired.

## J. FLOERSHEIM, KUNSTADTER & CO.

IMPORTERS AND MANUFACTURERS OF **Jewelry, Novelties in Belts, Girdles, Etc.**

**S.W. Cor. Jackson & Market Streets, CHICAGO.**

**Established 1872—26 Years of Uninterrupted Success.**

When ordering, please mention THE KEYSTONE.

## Electro-Metallurgy.

III.

### Gilding Chains.

IN doing jobwork on vest and other chains, workmen often experience trouble in obtaining an even deposit. This condition more frequently ensues in shops where electric currents of low voltage are employed. We are told in our technical books that only a current of low voltage (one-half to one and a half volts) is required for depositing gold. While this is true in a broad sense, yet in gilding chains and other articles made up of detached parts, similar to links, a current of higher voltage is an advantage, as it serves to better force the current through interruptions.

**Voltage as Relates to Gilding**

The relation of voltage as to electro-deposit does not seem to be well understood by even the people who, in many instances, practise the art of gilding and plating. In explanation, suppose we are doing gilding from two sources of electricity; one is a primary battery affording a current of two volts, and the other affording a current of seventy-five volts. Now, with the two-volt source we would need to put but a little resistance in the circuit to enable us to reduce the amperage, so as to enable us to gild small articles. The average rule for gold is one to two amperes for every superficial foot of surface. With the seventy-five-volt circuit we would have to put in a great resistance, to cut the amperage down to the required amount.

The point we desire to explain is, that if we desire to make a good and even gold deposit on a chain, we can do so with fewer supports or electrical connections when using the seventy-five-volt circuit, than we could when using the two-volt circuit. To better explain, let us refer to Fig. 1, where we show at *D* a chain suspended in a gilding solution contained in the bath *A*. To produce a tension on the chain *D* and bring the links of the chain into a good electrical contact, we make the suspension wires *a b* of spring brass, so as to keep the chain taut.

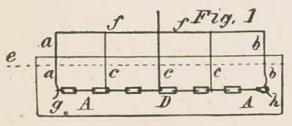


Fig. 1

Now, if we were employing a seventy-five-volt current, the two end suspension wires would be sufficient to insure a good gold deposit from end to end of the chain. If, on the other hand, we were using the two-volt current, we should add additional electrical supports, as shown at *C C C*, to distribute the low electrical pressure. To prevent, to a great extent, the deposit of the gold or other metal on the slinging wires, we can pass such wires through bits of glass tube, as shown at Fig. 2, where *C* shows a slinging wire and *B* such glass tube. The dotted line *e* is supposed to represent the height of the plating solution.

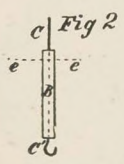


Fig 2

**Plating Cane and Umbrella Mounts**

In large towns, the electroplater is often called upon to plate a great number of small articles, like cane and umbrella mounts. Such parts are gotten up very cheaply, and consequently must be handled with great rapidity and a large number of the pieces placed in the bath at one time. We show at Fig. 3 a device for accomplishing this end. As shown in the cut, the supporting branches *d* only branch in two directions; but there is no reason why these branches should not radiate from the central wire *C* as closely to each other as the insulating glass tube *B* will permit. Of course, good judgment and experience will be the best guides for arranging the minor details of such a device.

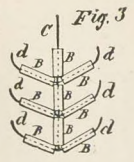


Fig. 3

A system of supports of this kind can be lifted out of or placed in the plating solution very quickly. The solution adhering to the goods or supports will naturally run down and drip off the central bar *C*, and in a large plant these drips are not an insignificant item to look to. It is a good plan to hang such supports over the plating bath until it ceases to drip, and then take off the articles placed on the points *d*. These points *d* can be made into hooks for pierced articles, or the point can stand erect, as shown; the latter is the better plan for cane and umbrella tips and cheap thimbles.

The bits of glass tube *B* will prevent in a great degree any deposit from the solution forming on the supports which hold the articles to be plated. When these supports do get "loaded" to any annoying extent, they can be "stripped" in a solution kept especially for this purpose.

There is a point to be observed which is often overlooked in plating establishments where they do a great deal of such small work. We allude now to the water remaining on the articles to be plated after the final rinsing. Such water, although insignificant on one piece, amounts to considerable when several hundred pieces are in a few hours placed in a plating solution. It would not be practicable to dry such pieces in sawdust or by heat. The best method which came to our notice is a centrifugal dryer, where the articles are rapidly revolved in a moderately warm, dry atmosphere. Cane and umbrella tips being cup shape, must be placed loose in a dryer, so they turn over among themselves, in order that the water held in the cup recess can be thrown out.

## Cincinnati Letter.

The wholesale trade is making big preparations to entertain merchants from other points and the surrounding country who visit Cincinnati during the G. A. R. Encampment here next September. At this early date many of the houses are sending invitations to their customers to come and accept the hospitality of the local trade while in the city. A bureau of information will be opened under the auspices of the Wholesale Merchants' Association for the accommodation of visiting merchants, which of course includes jewelers. The Cincinnati people will make every effort to give a substantial welcome to the guests of the city, but special efforts will be made by our wholesale jewelers to greet and care for visitors in the trade.

Jas. B. Carr, manager of the B. H. Steiff Jewelry Company, Nashville Tenn., was a welcome trade visitor here the early part of April. He was accompanied by Mrs. Carr, and they were in attendance at the wedding of the daughter of A. G. Schwab, of A. G. Schwab & Bro.

R. K. White, of Grafton, W. Va., was a recent visitor in this market.

Geo. F. Long, of New Richmond, Ind., was a recent trade visitor here.

Henry C. Rocker has begun business in room 4 of the Eckstein Building, at 417 Race Street.

Felix Sattler, of New York, has entered the employ of Richter & Phillips as a traveling salesman.

The Jewelers' Company has moved from 37 West Fifth street to the third floor of 415–419 Race Street.

Robert Cretchmar, formerly of Newark, N. J., is now foreman of the factory of the Duhme Manufacturing Co.

The Ohio bicyclists appear to be a unit in favor of the Dodge bill, now before the State Legislature, providing for the appointment of a State road commission, whose duty it will be to look after the roads of the State. Wheelmen everywhere favor all legislation having for its object the improvement of the roads.

Our bicycle stores and factories have had a very busy time, preparing for the spring rush; several of the local dealers have had openings the past month, and are pushing their business to the utmost limit. There is not a doubt but that the sales this season will be greater than ever before, owing to the low prices and the growing demand. Some of our jewelry stores are handling wheels.

Opponents to the use of trading stamps have scored a victory in the recommendation by the Judiciary Committee of the State Senate of a bill prohibiting the use of these stamps, on the ground that it enables some merchants to effect a co-operative monoply. Had this bill not been introduced, it is understood that an organized effort to get rid of the nuisance would have been taken up in this city.

L. Gutmann, the wholesaler, has lately returned from a three weeks' vacation spent at Hot Springs, Va. He was accompanied by Mrs. Gutmann.

The Cincinnati Credit Men's Association has been doing all that it can to secure the passage of the State law providing for the alteration of the law regulating chattel mortgages, cognovit notes and the like. The purpose of the bill is to provide against the abuse of preferences, by which wholesalers and jobbers are often called upon to lose a good round sum in case of failure. The bill is being urged in the State Legislature, so that in case the Torrey or Henderson bill, as it is now, fails in the present Congress, there will be a law in Ohio to answer to part of the same end.

Kentucky farmers have made a great deal more money this year than last, mainly through the great advance in leaf tobacco That State grows a large percentage of the entire crop of the world, and the most of it is sold there. The trade ended this past week, the total sales being 170,175 hogsheads, and the valuation, at an average of $85, amounted to about $12,000,000. In some of the commonest types the advance is fully 400 per cent. New tobacco is now being sold, and through there is but half a crop, prices are so high that farmers will get more than for several years past.

We are glad to notice that our thriving neighboring city of Nashville is about to convert its Centennial site into a public park. Her citizens have been deeply interested in the project for several months. Any one who was so fortunate as to enjoy a visit to their exposition last summer will be glad to hear of the project being consummated. It is now almost a certainty that the Tennessee Centennial grounds will be a public park. The people of Nashville having enjoyed the delights of the Centennial for one summer, they felt that Nashville must have perpetual grounds of recreation; and it was from this sentiment that the present park movement began. The Parthenon, as an architectural triumph in itself upon which to feast the eyes, and as a picture gallery and art palace, with the History Building as a repository for relics, and with the spacious auditorium, to be used for the purposes for which it was designed, our park begins well equipped with permanent buildings. In fact, almost every equipment needful for a park is already at hand.

A notable financial measure of vital importance to the jewelry interests, as well as to other mercantile lines, passed the Ohio Senate last month, and has reached the House of Representatives. It is expected it will be enacted and go into effect as a law before the month of April is out. The bill puts an end to the custom of preferring favored creditors in assignments. It provides that no creditor shall be preferred within three months prior to the assignment. Such preferences, according to the proposed regulation, shall be unlawful and invalid. The measure is designed to protect creditors of all classes against fraudulent assignments, and is generally approved by fair-minded merchants. The bill is supported by the Cincinnati Credit Men's Association.

The annual meeting of the Rookwood Pottery was held recently, and W. W. Taylor, who has been in charge for a long time, was, of course, retained as president, and the others interested in the establishment will direct its affairs as usual. The pottery is conducted so much on artistic lines without the idea or intention of money-making, that the holding of annual meetings seems incongruous with the *raison d'etre* of the institution. The new styles of product of the pottery in the way of the new sea-green and iris glazes have been attracting widespread attention, and a large collection of the new product is being made up for exhibition in Chicago.

Edward Mittendorf, with E. & J. Swigart, was married March 26th to a Cincinnati lady. THE KEYSTONE extends congratulations.

J. M. Neth, of Eaton, Ohio, was in Cincinnati last month on a purchasing trip.

Jeweler John Messner, of Hamilton, Ohio, was in the city recently, buying goods.

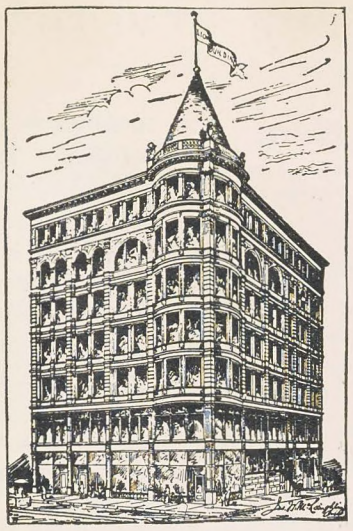
## QUEEN CITY WATCH CASE MFG. CO.

C. A. REMME, MANAGER.

Makers of HIGH-GRADE { GOLD and SILVER WATCH CASES.

Special Cases to Order.
Altering, Changing and Repairing.
Cash for Old Gold.
Send for Catalogue. Special Attention to Plating.

*S. E. Cor. Fifth and Elm Streets,*
*LION BUILDING,* *CINCINNATI, OHIO.*



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## DORST & CO.

*JACOB DORST, Manager,*

Manufacturers of
**Diamond Mountings, Medals, Badges, Class Pins, Masonic Jewels, Rings, etc.**

We make a specialty of
All Kinds of Repairing and Special Ordered Work.

SEND FOR CATALOGUE.

*S. E. Cor. Fifth and Elm Streets,*
*LION BUILDING,*
*CINCINNATI, OHIO.*

# W. P. HAMLIN, *Jewelry and Art Auctioneer,*

28 State Street, Rochester, N. Y.



## TESTIMONIALS

MR. W. P. HAMLIN. RUTLAND, Vt., September 25, 1897.

DEAR SIR:—Please accept our thanks for the way in which you have conducted our sale. We are pleased with your work, and can cheerfully recommend you to any one thinking of having a sale. Do not hesitate to refer to us at any time.

Yours respectfully, HASCALL & BROWN.

TO WHOM IT MAY CONCERN: CAZENOVIA, N. Y., October 9, 1897.

I would cheerfully recommend Wm. P. Hamlin as a very successful auctioneer, as he has just closed a five days' sale in my place of business, daily drawing crowds that my store would not accommodate, and realizing prices that were very satisfactory. Any one wishing to reduce stock and raise money would do well to engage him. C. M. KNOWLTON.

NATCHEZ, MISS., February 27, 1898.

I consider Mr. W. P. Hamlin, America's greatest auctioneer. I speak from my personal observation and experience with auctioneers. He has just closed a fifteen days' sale for me, selling over $20,000 worth of stock and realizing for me a handsome profit over all expenses. If you want a successful salesman, employ him. R. J. HENSON.

## REFERENCES

PICKERING & QUINTARD, Wholesale Jewelers, 11 John Street, N. Y.
PHILIP PRESENT, Wholesale Jeweler, Rochester, N. Y.
VAN BERG SILVER PLATE CO., Rochester, N. Y.
G. M. KELLER, Lock Haven, Pa.
AMSDEN BROS., Bankers, Rochester, N. Y.
M. C. THOMAS, Waverly, N. Y.
HASCALL & BROWN, Rutland, Vt.
M. STOINERT, Fair Haven, Vt.
G. W. MILLER, Weatherly, Pa.
S. D. SCHENCK, Binghamton, N. Y.
R. J. HENSON, Natchez, Miss.
CYRUS N. GIBBS, Framingham, Mass.
M. KNOWLTON, Cazenovia, N. Y.
DAVID PRESENT, Geneva, N. Y.
W. M. TIMBLIN, Olean, N. Y.
N. HIGHFIELD, Hampton, Va.
ELSHEIMER & SON, Niagara Falls, N. Y.
R. C. HITCHLER, Nanticoke, Pa.
J. W. JOHNSON, Wholesale Jeweler, 22 John Street, N. Y.
E. BUNDY, Huntington, W. Va.
M. ROSENBLOOM, Wholesale Jeweler, 320 Granite Building, Rochester, N. Y.

Can you equal this 16 Size 20-year Open-Face Case, with 11-jewel Waltham, at $8.85 net? If not, order these while they last.

*No better Case made,*



*you will say, when you see these.*

We make a specialty of
**Men's Heavy Doublet Rings.**

Full line of
**Blouse Sets**
and Jewelry of every description at prices equally low.

## JULES ASCHEIM, 41 MAIDEN LANE, NEW YORK.

# *The Climax of Bicycle Perfection.*

**The Mechanical Superiority of the "Sterling" Bicycle.—Its Strides into Popular Favor.—The "Sterling" Chainless.**

"Built like a watch" is one of the best known of current commercial phrases. Every inhabitant of wheeldom, which is now as extensive as civilization, knows that it was adopted to express the mechanical perfection of the popular "Sterling" bicycle. And, what is more to the point, most cyclists know, either by personal experience or by the assurance of the experienced, that the pretentious phrase well expresses the constructive excellence of this world-famed wheel. The makers of the "Sterling," like the makers of watches, realized that perfection was not the creation of a day. They knew that it could only be attained in time through the essential agency of mechanical genius, coupled with persistent effort. Thus the "Sterling" well represents the evolution of bicycle construction to its present almost inconceivable perfection, as represented in the "Sterling" models of 1898. The name "Sterling" was a happy one. Signifying, as it does, absolute reliability, time has conclusively proved the fitness of its application to the product of the big factories in Kenosha, Wis.



"Sterling" Fork.

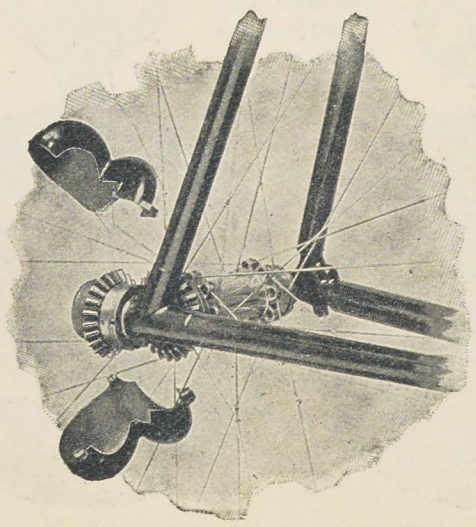
**Enthusiasm of "Sterling" Riders.**

The loyalty of the "Sterling" riders to their wheels reminds one of the Arab's love for his steed, as immortalized in prose and verse. And both are founded on actual service. The improved "Sterlings" of this year will still further strengthen this loyalty. An admirable feature of these wheels is their peculiar grace of form, the result of artistic modeling. In wheeldom they are not inaptly known as "thoroughbreds," owing to the very noticeable elegance of their appearance and their naturalness of movement. To this beauty of shape and ease of motion is added great strength and endurance. This combination of qualities is insured by the purchase of the best raw material the market offers, and by the employment of the most accomplished designers and mechanicians, and most skillful labor. The problem of the "Sterling" people is not how cheap they can build, but how well they can build, and the crowning feature in their manufacturing methods is their department of tests, which makes it impossible for a wheel imperfect in its entirety, or any of its parts, to leave their factory.

A striking feature of the "Sterling" wheel is the fork above illustrated. This fork has become famous the world over, and has been extensively imitated. Its design is extremely graceful, and, embodying, as it does, the arched crown, is very strong. This fork is made of a single tube drawn and bent to the correct form, with an external reinforcement at the crown. It is attached to the stem by a drop forging. This year it is made of a little larger tubing to make it proportionate to the frame. Every change in any part of the "Sterling" wheel must be improvement. Nothing novel is introduced merely because it is novel. Perfection in chain wheels would, indeed, seem to have been reached in the 1898 "Sterlings."

**The New Chainless "Sterling."**

In keeping apace with the times the "Sterling" Company has produced a novel chainless bicycle. In its construction are incorporated ideas which are departures from other chainless models that appeared last October. In the "Sterling" model the main driving gear wheel is located in the center of the crank axle. The small pinion on the forward end of the driving shaft meshes on the right side of the driving wheel. That necessitates the near pinion to engage the teeth on rear hub, back of the axle, instead of in front of it, as in all other forms of chainless wheels. That permits of the use of the entire lower right rear tube as a container for the connecting shaft, instead of building a framework for the support of the gears.



Rear Hub of "Sterling" Chainless with Gear Cases removed.

**Rear Wheel Easily Removed.**

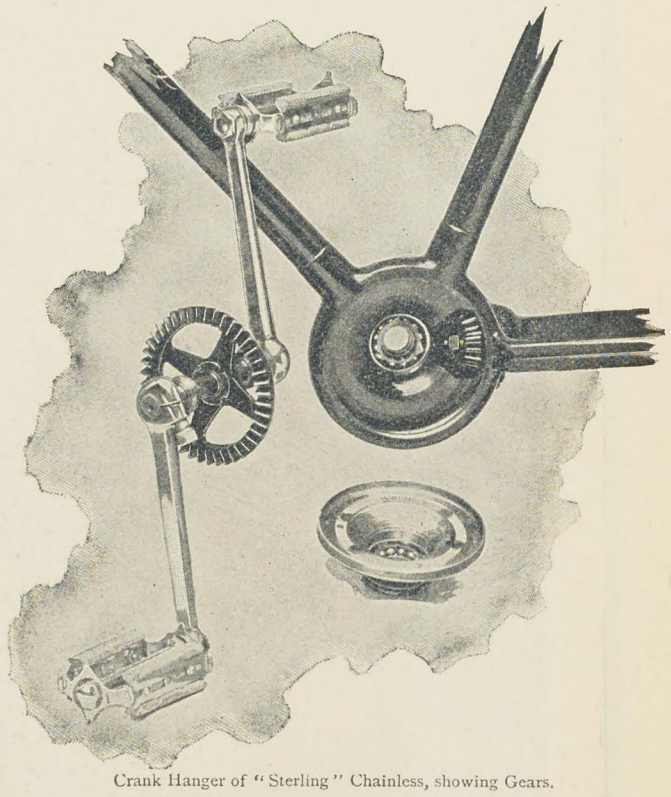
The rear wheel may be taken out by removing the step nut and unscrewing the rear axle. The two rear gears are made interchangeable, giving the rider the advantage of a seventy-two or seventy-eight geared wheel, as may be desired, with one set of gears. This will be the standard equipment, but another option will be offered by which the rider can have a combination of sixty-four and eighty-eight, if he prefers.

These special features of the "Sterling" chainless construction are shown in the accompanying illustrations.

The rear fork on the gear side has a boss in which the axle is screwed. The opposite fork end has a circular opening larger than the cross section of the axle and a short slot for inserting the axle. A threaded sleeve fills the circular opening, which is also threaded, abutting against the outside face of the fork end with a shoulder. A lock nut fits upon the inner projecting portion of the sleeve. In assembling, the wheel is first mounted on the axle, the latter is then screwed into the fork end on the gear side by applying a wrench on the hexagonal portion of the axle projecting beyond the hub on the opposite side. When the gears mesh properly, and the lock nut has been placed on the left side end of the axle, the threaded sleeve is placed in position and the lock nut is tightened.

**Interchangeable Pinions.**

The lines of mesh along the teeth of bevel gears, or radial gears as they are more properly called, always point to a common center when the gears are in proper engagement. The common center in the front row gears of a chainless bicycle is at a point in the axis of the crank shaft, but if the two front pinions were interchanged they would cease to have a common apex, and could not be made to co-operate. With the driving shaft at right angles with the crank shaft and the rear axle, the pinions in front as well as in the rear could be made interchangeable only at a pitch of forty-five degrees, which would make the interchangeability of no value. With the driving shaft at another angle with the rear axle, as in all chainless cycles, it is possible to so proportion the two rear pinions that the mesh lines point to the same center whether the smallest pinion is on the hub or on the driving shaft. The possibility is limited to two sets of interchangeable gears for any given angle of the driving shaft, but has been taken advantage of by the "Sterling" company.



Crank Hanger of "Sterling" Chainless, showing Gears.

The "Sterling" chainless is made in two models. One for men and a drop frame design for women.

**Tests of the "Sterling."**

The "Sterling" wheel has had some remarkable feats to its credit. Last year a military bicycle corps of twelve members rode "Sterlings"—taken from stock—from Chicago to Washington, D.C., over mountains, rough roads and good, in rain and shine, carrying in addition to the rider about forty pounds of baggage. The wheels behaved splendidly, and the experience proved how perfectly every part of the "Sterling" is designed to perform its work, and how nicely all proportions are calculated.

It is difficult to determine accurately the average life of a wheel, but it is estimated that the ordinary person, riding to and from his business and for pleasure, covers about two thousand miles in a year. There are "Sterlings" still in use that have been ridden nearly forty thousand miles, which would be equivalent to twenty years of average service. One of these wheels was ridden in one year over thirty-four thousand miles, and the bearings when examined showed no appreciable wear; and this wheel was a second-hand one taken from stock! In doing this the wheels rotated in their bearings nearly twenty-five million times, and still no appreciable wear! Numerous other no less trying tests have removed all doubt as to the absolute reliability of the "Sterling" wheel.

## Cleveland and Northern Ohio.

There is nothing else spoken of now but war, and it is having a very serious effect on trade in general. It would seem as if the expenditure of so many millions of dollars by the Government ought to make good business, and perhaps it will after the first frenzy for war has passed by. It seems a most unfortunate thing, just as conditions were shaping themselves for a very prosperous year, that new complications should arise.

Charles Whittlesey now has charge of the optical department of Scribner & Loehr, 143 Euclid Avenue. Mr. Whittlesey will fit out his department with a dark room and refractometer and other late improvements.

Louis Blossom, optician and salesman for Schaumeker Bros. for the past three years, has entered the employ of F. H. Kramer in the Y. M. C. A. Building, and will manage the jewelry department. Mr. Blossom is at present suffering from an attack of fever.

B. W. King, of the Julius King Optical Co., was in town recently, renewing old acquaintances.

William Norton, salesman with Scribner & Loehr, died of pneumonia after a short illness of five days. Mr. Norton was thirty-eight years old, and had been in the jewelry business in this city for the past fifteen years. A widow survives him. THE KEYSTONE extends its sympathy.

L. L. Ramalia, watchmaker for Sigler Bros. Co., has retired, and will locate in Hartwick, Mich., and take life easy for a few years.

The Grant Whittlesey Optical Co. have recently been appointed distributors and agents by the Julius King Optical Co. for the De Zeng refractometer for the Cleveland district. The Julius King Optical Co. have recently become sole agents for the world for this instrument.

Forest Jackson is now associated with F. H. Kramer as watchmaker, Mr. Kurtz having resigned.

Messrs. F. X. Dietz and M. B. Einig, of the Bowler & Burdick Co., were in Chicago the best part of last month on business for the firm.

The T. M. Heard Optical Co. report great success with their new improved eyeglass.

Messrs. Antone Haure & Co., 2346 Broadway, were robbed the first of last month of jewelry, watches, etc.

The Bowler & Burdick Co. will add an optical department to their new store in the New England Building, into which they will remove in a few days.

A. C. Jacobs, Wapakoneta, Ohio, is confined to his bed by sickness. THE KEYSTONE wishes a speedy recovery.

H. E. Kleinlein, Sandusky, Ohio, is confined to his bed by sickness. THE KEYSTONE wishes a speedy recovery.

F. B. Kehrer, Bucyrus, Ohio, is in Arkansas on a trip for pleasure and health.

B. F. Kerr, Ashtabula, Ohio, was a recent trade caller.

W. E. Porter, Columbia Station, Ohio, was in town the middle of April, looking over the wholesale houses.

A. H. Rodgers, Chagrin Falls, Ohio, was a buyer in the wholesale houses recently.

Mr. Bonewell, with John Rich & Co., Painesville, Ohio, was in town recently, and called on the wholesale houses.

Burt Russell, formerly at Bellevue, Ohio, has located in Centersburg, Ohio. Mr. Russell bought his stock in this market.

J. F. Sipe, of Sipe & Sigler Co., is in New York on business for the house.

Among the many inventions of interest to the trade, that which D. W. Hull, Warren, Ohio, has recently patented is especially good and practical. It is a simple arrangement of the verge and pendulum of "Yankee" clocks so it is not possible for the layman to move the clock and throw it out of beat. The past week this invention has been shown here, and has the endorsement of all practical and experienced watchmakers in this city.

The Chamber of Commerce of this city is arranging for a trade excursion for the wholesale and jobbing houses. A trip West on the Lake Shore & Michigan Southern Railroad as far as Elkhart, Ind., and return via Michigan is planned for May 10th to 13th inclusive. The jewelers will avail themselves of this to make personal calls on their trade.

There has been considerable talk of late over the project of forming an optical association in this city in order to have a more uniform price for goods, to avoid the slaughtering of prices; incidentally to also become better acquainted and for mutual instruction and assistance in the art. It would give the writer much pleasure to have some definite organization come out from this agitation.

Webb C. Ball is in New York looking up the latest novelties.

Mrs. Lorena Fischer, wife of Jeweler Fischer, 855 Scranton Avenue, died the middle of April.

Capt. R. E. Burdick was in Columbus last month in the interests of the troop of which he is captian. The troop expect to be called out to actual service before the first of the month.

## San Francisco Letter.

Fred Davis, the popular knight of the grip for Nordman Bros., has just returned from an extensive trip through the interior.

E. Saunders recently suffered an attack of the measles, and was confined to his bed for a week. He is now out on the road in the interest of his house, A. I. Hall & Son, and is doing a good business.

Fish Bros., of Seattle, Wash., have made extensive alterations in their store. They have added another window, and their place looks very attractive, indeed.

George Bauer is no longer connected with Geo. Greenzweig & Co.

A letter has been received from Jaccard, the jeweler, formerly of San Leandro, Cal., now in Dawson, Alaska. He states that tales of that country's riches have not been exaggerated.

M. Phelps, of Phelps & Adams, is now in the East on his annual trip there. He is expected home shortly after May 1st.

Alphonse Judis, the well-known jobber, has enlarged his location by the addition of another room. He says "it is wonderful how business keeps up."

Rothschild & Hadenfeldt have made extensive alterations in their office, enlarging it to some extent. The arrangement is such that now they can display goods to much better advantage than heretofore.

The Howard Clock Co. have the contract for the large tower clock to be placed in the top of the ferry building at the foot of Market Street.

Henry Abrahms, of M. L. Levy & Co., visited this city for a few days last month. He has been making his home in Los Angeles, Cal., for the past year, with expectations of remaining indefinitely there.

Charles Weinshenk has returned from an extensive trip through the North.

Mr. Owen, formerly bookkeeper for California Jewelry Co., is now in the East, intending to remain permanently there.

M. Schussler, of M. S hussler & Co., enjoyed a trip of about a week's duration recently in the southern portion of the State.

Henry Rothschild has just returned from his Southern trip. He reports prospects very discouraging on account of lack of rain in that section.

C. Richards, formerly of Montana, has opened up a store in Seattle, Wash.

M. J. Lyon, formerly of San Leandro, Cal., has accepted a position with The Frederick Co., of Seattle.

Mr. Boyle, formerly of Puyallup, Wash., has accepted a position as head watchmaker with Albert Hansen, of Seattle.

The engagement is announced of Nathan Phillips, jeweler, of Seattle, Wash., to a very charming young lady of that city.

W. B. Clifton, formerly of Santa Barbara, Cal., is working now for G. Benninghausen, of Seattle, Wash.

George Iew, formerly watchmaker for Wm. Fink, of Seattle, Wash., has written from the Klondike that he has located some good claims. We wish him good luck.

It is reported that C. J. Sturts, formerly in business in this city, and who recently started for the Klondike, lost his entire outfit while crossing one of the passes.

Richard Vaeth, leading jeweler of Tacoma, Wash., has returned home from his California trip much benefited in health.

H. H. Day, of Tacoma, Wash., has opened an extensive establishment under the name of H. H. Day Jewelry Company.

B. Erb, formerly of Colorado, has located a store at Eugene, Oregon.

A. Muhs, the jewelry box manufacturer, of this city, has moved his establishment across the street from his former location to 208 Sutter Street. His new quarters are a big improvement over the old.

J. I. Bonestell, the well-known former member of the California Jewelry Co., has purchased a country seat at San Mateo, Cal. He moved into it last month.

Wm. Dielschneider, the leading jeweler of McMinville, Cal., is in the city taking a course in optics with the California Optical Co.

A final dividend was paid from the estate of V. Gobat, Goldendale, Wash., who died several years ago.

George Heinbach, Oreville, Cal., is in this city looking after the interest of a valuable bicycle patent of which Henry Jacobi is the patentee.

The jobbers' and manufacturers' agents have agreed to close their places of business at one o'clock Saturdays during April, May, June and July.

Joe Nordman has been elected president and Leon Nordman treasurer of the Berteling Optical Co.

The following were in town last month: Chas. Steinmetz, Suisun, Cal., E. Mayhew, Chico, Cal., and E. Joseph, Ukiah, Cal.


18 SIZE | ELGIN | Class 2

Perfection SB Main Springs

EVERY ONE GUARANTEED.

IMPORTED BY

SISCHO & BEARD,

The Jewelers Supply House,

ST. PAUL, - - - MINN.

OUR PERFECTION MAINSPRING

is all its name implies. Put up in the most convenient form and absolutely guaranteed.

PRICE $15.00 per Gross.
1.25 per Dozen.

Mainsprings Are Ripe.

Do you want a spring that will give you satisfaction? We have them for all makes of American Watches.

Each spring coiled and tagged.

SISCHO & BEARD,

Northwestern Headquarters for

Jewelers' Tools and Materials,

ST. PAUL, MINN.

Special Offer, FREE.

Our elegant Solid Oak 20-Drawer Cabinet FREE with a gross order. Springs assorted to suit you.

SIZE

Eureka Eureka . . . Main Springs

Manufactured Especially for

SISCHO & BEARD,

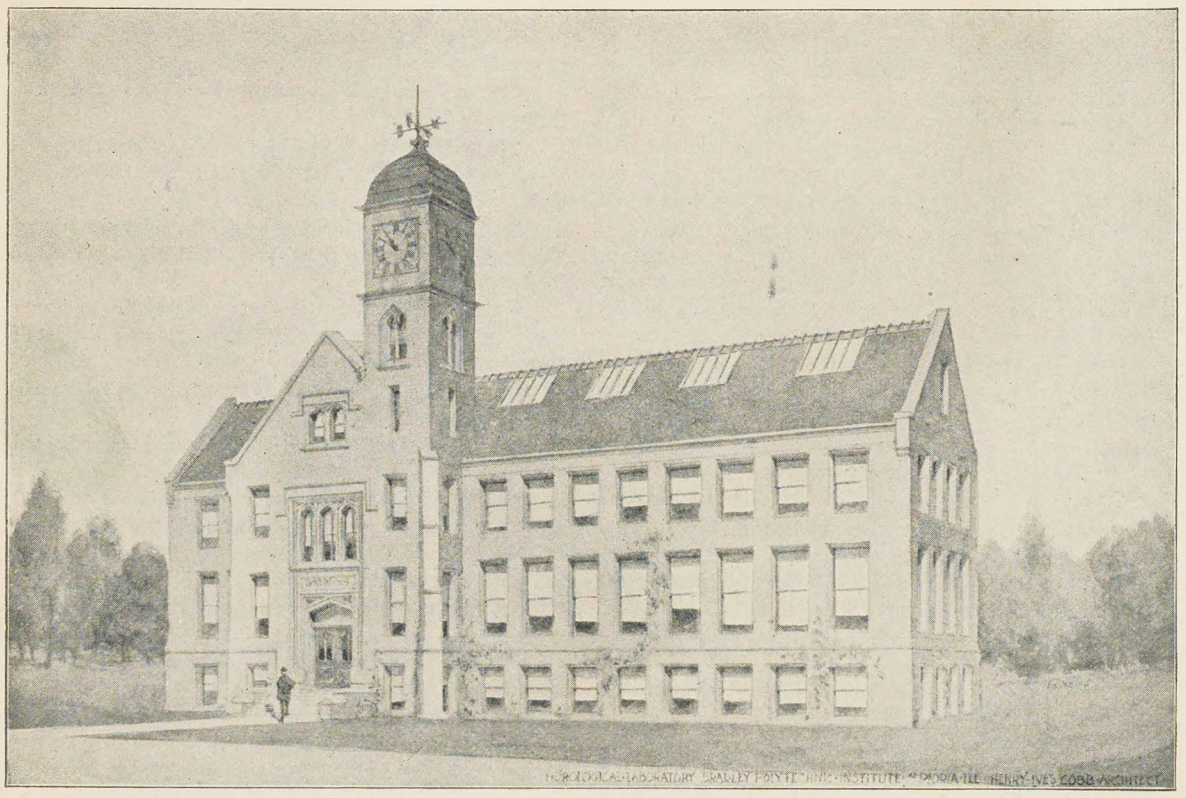
The Jewelers Supply House,

ST. PAUL, MINN.

THE EUREKA MAINSPRING

is guaranteed the best Spring in the world for the money.

PRICE { $12.00 per gross.
1.00 per dozen.



THE HOROLOGICAL BUILDING.

# *Horological Education in the West.*

## BRADLEY POLYTECHNIC INSTITUTE AND ITS HOROLOGICAL SCHOOL.

The progress of education and educational institutions in the West is nowhere better illustrated than in Bradley Polytechnic Institute, the new school founded at Peoria, Illinois, by the munificence of Mrs. Lydia Bradley. Of special interest to readers of this paper is the Horological School connected with the Institute. This was formerly the Parsons' Horological Institute, known for years so widely and favorably to the jewelry and watchmaking trades.

THE KEYSTONE has spoken several times of late of the changes that have taken place in this Peoria school. How its field of usefulness in educational matters affecting the applied sciences, and the trades kindred to watchmaking had been broadened, how its facilities have been wonderfully increased, and how its opportunities in all directions had been widened and strengthened by its amalgamation with the Bradley Polytechnic Institute. The founding of this Institute is one of the most important events in the history of technical education in this country, and a brief sketch of its conception and progress may be of interest here.

Mr. and Mrs. Tobias S. Bradley first conceived the Polytechnic Institute as a memorial to their deceased children. Mr. Bradley's death, in 1867, left the plan in the hands of Mrs. Bradley. Her first intention was to provide for a school to be inaugurated after her death, but in the fall of 1896 she determined to erect the buildings and start the school during her lifetime, if possible. Trustees were selected, and an organization was effected under the University Act of the State of Illinois. Mrs. Bradley entered into the contract with the trustees to provide liberally for the expenses of the school, and has already given, besides current expenses, a sum of $185,000 for buildings and equipment, in addition to a gift of seventeen acres of land within the city limits of Peoria for the site of the Institute. She has provided in her will a magnificent endowment for the Institute.

Work was begun immediately upon plans for two buildings, one of the buildings being intended to accommodate the school of Horology. Both of these buildings are now completed and occupied. Instructors have been appointed, and students are at work. The Institute at present consists of two divisions—the School of Science and Art, occupying Bradley Hall, and the School of Horology, which occupies the smaller building, illustrated at the head of this article, known as the Horological Building. It is expected that other departments will be organized for instruction in engineering and in trades of various kinds.

The story of the connection of Parsons' Horological Institute with Bradley Polytechnic Institute, is briefly as follows: Several years before the foundation of the Institute, Mrs. Bradley was influential in having the Parsons' Horological Institute, of La Porte, Ind., a school where young men and young women were given a practical education as jewelers, watchmakers and opticians, brought to Peoria. This school had an average attendance of seventy-five students, and had been conducted under the direction of J. R. Parsons, until the organization of the Institute proper last July, when it was turned over to the trustees, and became a part of the Bradley Polytechnic Institute, Mr. Parsons remaining in charge as principal.

The Horological Building, as now completed, is a large three-story, stone structure, admirably designed and arranged. It is a handsome and substantial structure, containing twelve rooms, including offices, shops, and work rooms. On the ground floor are the Reception Room, the Office of the Principal and Bookkeeper, the Material Room and the A B C Room, or the Primary Department. In the Material Room is kept a large and well assorted stock of tools and materials, such as are used in the various branches of the trade.

In the Primary Department, or A B C Room, students are taught to make some of the small tools, such as drills, countersinks, jewel gravers, jewel burnishers, and screw taps; here they also learn the use of grinding materials, making forks, tempering, coloring and polishing. This gives them the foundation of practical watch work. Lathe work of all kinds is taken up, such as turning staffs, setting jewels, turning down pinion leaves, square and cone pivots, fitting up cylinders, staking on wheels, making collets, drilling for pivots and pivoting, slide-rest work, wheel cutting, milling, damaskeening, and all work pertaining to the lathe. This work is first done on a large scale, and then worked down to the very smallest work. The student is taught theory as well as practical work, so that when he meets with the problem of practical work, he will find himself possessed of knowledge and judgment to tell him what to do, and of skill to do it.

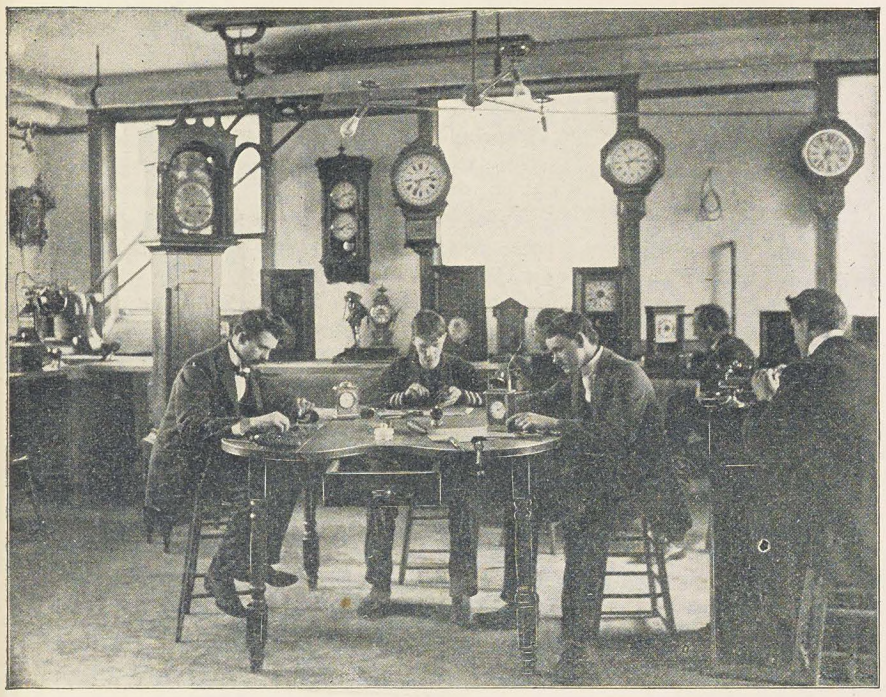
On the first floor, or basement, we notice first a large room to accommodate the Jewelry Department. Here students are taught to work in gold and silver, hard and soft soldering, the repairing of jewelry, to set pearls, garnets, diamonds, and to do anything in the line of stone setting, to make plain gold and band rings, hair mountings, raised monograms, bangles, charms, gold and silver plating, Roman colorings, in fact everything in the manufacturing jewelry line. We give an illustration of this department on this page. On this floor is also found the Clock Department, which is illustrated on the next page; the Electrical Room; the Gold Melting Room and a Mechanical Room.

On the third floor the large room is devoted to the Engraving and Finishing Department, an illustration of which we give herewith. In the Engraving Department students are taught script, old English, all fancy letters, monograms, and all kinds of metal engraving, such as is done in the first-class jewelry stores. In this department students are taught not merely the mechanical work of executing designs, but they are encouraged and stimulated to make up original designs.

The Finishing Department takes up escapement work on a little larger scale than ordinary watch work, and students are here taught such work as watch escapement,



A B C DEPARTMENT



CLOCK DEPARTMENT.



MANUFACTURING JEWELRY DEPARTMENT.

cylinder, lever, duplex and chronometer, setting pallet stones, adjusting, banking, drop, let off, locking, roller action, fitting jewel pins to fork, depthing of train and upright springing. From this department students graduate as watchmakers. The Lecture Room is also situated on the third floor. The students in the Optical Department receive their instructions in optics in this room.

The building in every way is an ideal one for a watchmaker's school. Its furnishings, its equipments, its finish and its arrangement are thoroughly modern and up-to-date. Its cost was approximately $20,000.

The Faculty of the Horological School is as follows:

Edward O. Sisson, Director, Bradley Polytechnic Institute.

J. R. Parsons, Principal, Horological School.

Grant Hood, Finishing Department.

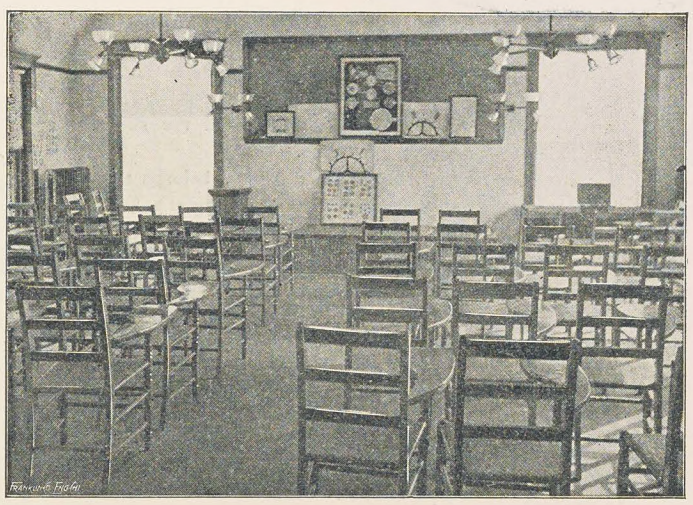
C. E. DeLong, Engraving Department.

Crawford Phillips, A B C Department.

T. B. Phillips, A B C Department.

A. B. McDonald, Repairing Department.

G. W. Drury, Jewelry Department.

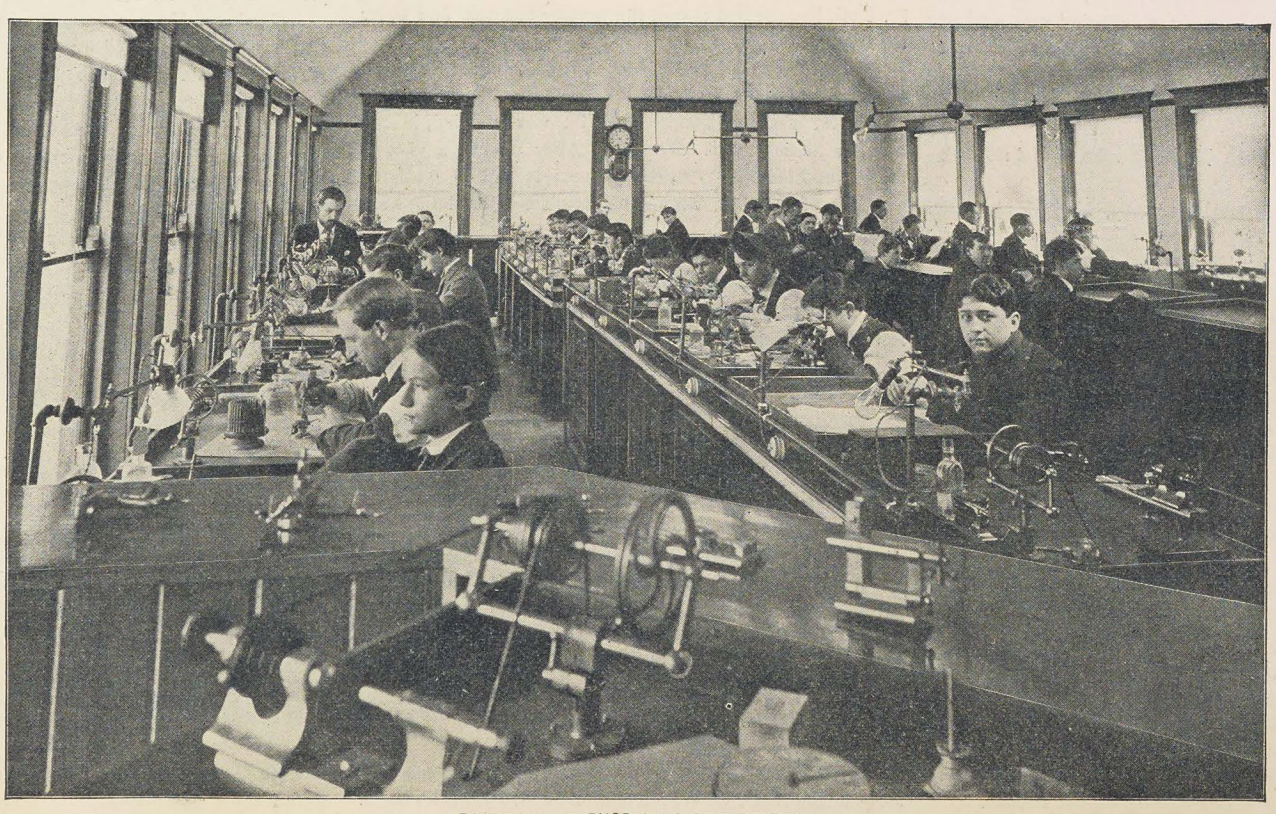


LECTURE ROOM.

It is the evident intention of those in charge of the Bradley Institute to have equipment and instruction of the very best quality, and all matters will be decided with a view to the best interests and progress of the students in whatever department they may be found. The privileges of the School of Science and Art will be extended to students in the Horological School just as far as they can profitably make use of them. The library, meetings of the students, literary and scientific societies, and an Institute chorus and orchestra will be shared by all students.

It was the boast of Napoleon Bonaparte that he had opened up a career for talent. This noble woman of Peoria can boast of something still better—when she gave her wealth to this splendid cause she opened up opportunities for the improvement of talent. It will be of inestimable benefit to thousands of young men and young women, and through them to the industrial development and progress of the country. It may be set down as a rule in the Bradley Institute, that if a youth is sound in body and mind when he enters its walls, he will have an opportunity to acquire that which will enable him to gain a competence, and to win a full recognition for whatever degree of power there is in him.

As to the location of the Institute, it would be difficult to find a more desirable one. It is situated on high bluffs, overlooking the busy city of Peoria, with an extensive view up and down the valley of the Illinois; students and visitors alike are charmed with the prospect. Ample grounds and perfect drainage complete all the requirements that promote health and comfort. There seems to be nothing wanting in the Bradley Polytechnic Institute and its Horological Department to make it a model technical school, and The Keystone predicts for it a bright and wonderfully useful future.



FINISHING and ENGRAVING DEPARTMENT.

## News from the Northwest.

April business, as a rule, is quiet in this section. In the smaller towns the reports are, "farmers are busy seeding and getting things in shape for the summer's work." We have noticed that when jewelers carry a side line, and especially in fishing-tackle and bicycle sundries, that reports are better than from exclusive houses. The moral is easily read between the lines. Cameras and photographic supplies are also being added quite extensively, and it seems, are a good paying investment, as they are good summer goods. In the cities the retail trade has been only fair, some claiming war talk is interfering. Jobbers' reports show a very satisfactory state of affairs, sales running good and collections coming in fairly well. Travelers are all out and working hard, as all are bound to make their record this year.

W. O. McDivitt was elected councilman at the April election at Belle Plaine, Minn.

Harry E. Schloss, of Lewis Finklestein, has returned from his trip through western Minnesota.

L. Wilke, Minneapolis, is comfortably settled in his new store.

J. W. Weyman, St. Paul, has been confined to his home with a severe attack of sickness.

M. L. Finklestein, St. Paul, has had his store repainted and repapered, which makes quite an improvement.

Joe Jungbauer, formerly of Myers & Co., is now with Henry Bockstruck, St. Paul.

W. H. Chamberlain, Minneapolis was called to New York by the death of his mother.

M. Baer has opened a jewelry store at 10 Washington Avenue, N., Minneapolis.

F. R. Levy, Stillwater, Minn., is advertising his stock at auction to close out business.

The safe of F. N. Chase, Cedar Falls, Iowa, was blown open, April 17th, and goods amounting to $15,000 taken.

Will S. Dippo will begin business, May 1st, at 61 East Seventh Street, St. Paul.

E. C. Regli, Duluth, Minn., spent a few days drumming trade at Two Harbors, last month.

C. T. Andreas, Bayfield, Wis., is preparing for the spring sports. Bicycle sundries and fishing-tackle are two of his staple lines.

C. H. Todd, New Richmond, Wis., has closed a successful auction clearance sale. Col. T. E. Dawson, Chicago, had charge of the sale.

Meyer Shapira, senior partner of M. Shapira & Son, St. Paul, died, April 2d.

F. J. Schisler, Blooming Prairie, Minn., was elected assessor at the April election.

O. H. Arosin, St. Paul, is treating his store to a coat of new paper. "Bound to have it bright."

Herman Goetzke, St. Paul, was married, April 14th, to Miss Minnie Reimers. Here's to your good luck, Herman.

H. Buck, Garretson, S. Dak., is improving the inside of his store considerably.

Elmer E. Church, Clear Lake, Wis., was re-elected village clerk last month, only one vote being cast against him. Can't you find out who it was, Elmer, and convert him?

I. R. Bunker, of Sischo & Beard, St. Paul, has returned from his southwestern trip.

Jake Marx, of D. Marx & Son, St. Paul, is in North Dakota doing well.

John B. Pederson, formerly at Crary, N. Dak., is now located at Leeds, N. Dak.

Martin & Hoerr, Mankato, Minn., have added a nice line of cameras and photographic supplies.

Nick Hausen, Waukon, Iowa, will start in business at Fosston, N. Dak.

Luke R. Keating, of D. Marx & Son, St. Paul, is in southwestern Minnesota, rushing trade.

A. L. Simonson, of the Washburn Supply Co., Washburn, Wis., is a candidate for assessor at the spring election. Here's to your success.

A. L. Helwig, Bayfield, Wis., took a trip to Milwaukee, last month, in the interests of the State fish hatchery, located at Bayfield.

Abraham Goldstein, 121 South Wabash Street, St. Paul, was stricken dead, April 13th, from heart disease. Age, sixty-nine years. He was about the store when his end came. His two sons, I. Goldstein, of Goldstein & Doran, St. Paul, and J. Goldstein, of Goldstein & Harris, Minneapolis, have the sympathy of THE KEYSTONE.

W. J. Keating, Sioux Falls, S. Dak., spent a few days at Watertown last month, his former home, looking after his business interests there and visiting his old friends.

George P. Drew, Rock Valley, Iowa, is fixing up his store generally—a complete overhauling he says.

Nelson Peterson, Henderson, Minn., was elected justice of the peace at the April election. A good selection.

C. C. Staacke, St. Peter, Minn., was elected alderman by four majority last month. Close enough, Charlie.

F. W. Hauenstein, New Ulm, Minn., is a candidate for appointment as deputy internal revenue collector for his district. We hope you succeed, Mr. H., you deserve a little good luck.

J. G. Brown, Lewiston, Minn., has quit business there and gone to Illinois.

G. A. Klein, Duluth, Minn., has returned from a short business trip East.

Jack Grueson, Duluth, Minn., will remove, May 1st, to 31 West Superior Street.

Charles Folkers, West Superior, Wis., was badly injured in a runaway accident last month.

J. A. Gartland, Rock Valley, Iowa, is visiting at Rockford, Ill.

C. A. Brown, Appleton, Minn., has moved into his new store next door to the post-office.

G. A. McHenry, West Superior, Wis., has added a grinding and drilling outfit to his optical department.

The Jacobs Jewelry Co., 41 Western Avenue, Minneapolis, have enlarged their storeroom.

M. Bendz & Co., 228 Washington Avenue, S., are the latest acquisition to the retail jewelry trade.

Peter Veborg, Duluth, Minn., has moved into larger quarters.

A. O. Hulberg, formerly at Duluth, has started in business at Two Harbors, Minn.

G. A. McHenry, West Superior, Wis., is planning to build a summer residence at Minnesota Point.

J. J. Dowd, optician, 526 Nicollet Avenue, is the latest addition to the Minneapolis trade.

J. B. Hudson, Minneapolis, will spend the summer visiting and sight-seeing in Europe.

Harry P. Turner, Rush City, Minn., belongs to the volunteer fire department, and while working at a fire became coated with ice. Result, "he is now laid up and suffering from the bad effects of 'too much water.'"

Charles Geist, Duluth, Minn., spent a short vacation last month in the East.

Peter Fox, of Fox Bros., Washburn, Wis., has returned from his winter's vacation spent in the pine woods. A gain of five pounds in flesh shows it agreed with him.

F. Wilhelm, Superior, Wis., drives a dog team for pleasure. While out riding last month he collided with a street car. Result, "badly shook up but still able to attend to business.

R. J. Thierstein, Winona, Minn., has recovered from a siege with la grippe.

Charles Guslander, Foley, Minn., passed through the Twin Cities last month on his way to Martinez, Cal., where he will locate permanently. Sorry to lose you from our territory, Charles.

Frank Phillips, for several years with G. W. Wooley, St. Paul, has decided to quit the jewelry business and enter the lumber field.

F. S. Robbins, Benson, Minn., is a candidate for alderman on the Republican ticket.

E. A. Kersting, Plainfield, Wis., was married, March 29th, to Miss Francis Sherman. After paying a visit to friends at Madison, Wis., they have returned to "all the comforts of home." THE KEYSTONE's congratulations are extended with a vim.

E. E. Finch, River Falls, Wis., took the examination for the railway mail service at Minneapolis last month.

Wm. S. Dippo, St. Paul, was called to Hudson, Wis., last month, by the death of his mother.

Nels Nelson, Brownton, Minn., reports the arrival of a "new woman" at his home last month.

Bennett & Co., formerly at Amery, Wis., are now in business at Cloquet, Minn.

Hans J. Heram, Elbow Lake, Minn., spent several days in the Twin Cities last month visiting relatives.

Max Distell, Le Sueur, Minn., was a delegate to the A. O. U. W. convention, held at St. Paul last month.

Pottratz Bros., Belview, Minn., have added a repair department.

John B. Pederson, Crary, N. Dak., passed through the Twin Cities last month on his return from Grantsburg, Wis., where he had been visiting friends.

J. L. Moody has bought the jewelry stock of H. A. Borreson, Ellsworth, Wis.

F. M. Andrews, Stewartville, Minn., represented his lodge at the A. O. U. W. convention in St. Paul last month.

Lou C. Erven, St. Paul, has THE KEYSTONE's sympathy in his recent bereavement, the death of his daughter, Clara Evelyn, which occurred March 24th.

C. E. Ashton, Clinton, Minn., has removed to Allison, Iowa.

T. G. Mahler, Le Sueur, Minn., smiles when he says a young watchmaker arrived at home last month. "Here's to his long life, T. G."

John Cæser, Stillwater, Minn., has just completed his spring house cleaning. New paper and paint have improved things considerably.

Visitors to the trade in the Twin Cities the past month were: Jake F. Smith, Hastings, Minn.; Max. Distell, Le Sueur, Minn.; C. H. Nerbovig, Mapleton, Minn.; M. Pottratz, Belview, Minn; L. Schaefur, Shakopee, Minn; J. J. Birkebach, Kenyon, Minn.; F. M. Andrews, Stewartville, Minn.; George Hauenstein, Red Wing, Minn.; Chas. Guslander, Foley, Minn.; F. R. Levy, Stillwater, Minn.; F. L. Husby, Red Wing, Minn.; E. E. Finch, River Falls, Wis.; A. J. Lee, Hudson, Wis.; Hans J. Heram, Elbow Lake, Minn.; S. C. Hone, Goodhue, Minn.; I. Lindguist, Chisago City, Minn.; M. Hendricksen, Duluth, Minn.; Chas. F. Winter, River Falls, Wis.; F. Willman, Stillwater, Minn.: W. S. Branch, Parker, S. Dak.; John B. Pederson, Crary. N. Dak.; J. Herdliska, Princeton, Minn.; H. L. Mealey, Delano, Minn.; Mr. Ingraham, Menomonie, Wis.; Nic Hanson, Waukon, Iowa.

## St. Louis Letter.

The well-stocked sample-rooms of bicycle dealers would indicate that a large portion of St. Louisians will "ride awheel" during the cycling season. All the standard grades of machines are represented, and each agent and dealer is actively pushing the business, and a considerable number of new machines are seen on the streets. The $50 cycle appears to be a popular favorite, but there are large quantities of inferior machines going at less than half that price. The chainless is in evidence in the sample-room only as yet, and nobody predicts a heavy sale for it, especially at $125 each. There has been no attempt to enforce the collection of bicycle tax yet this season, and but few riders have voluntarily exchanged their dollars for the aluminum tag which insures them police protection.

The fire losses of the Mermod & Jaccard Jewelry Co. have been adjusted by the insurance companies. The total insurance on the stock was $269,250. The insurance companies have paid for the losses on the stock, $155,273.43, and $44,000 of the $47,750 insurance on the fixtures has also been paid. The insurance on the building, amounting to $105,000, was settled for $97,750.

Max Bauman has recently returned from his initial trip on the road for the Bauman-Massa Co.

Herman Mauch has been elected president of the Shepard Public School Association.

L. A. Aloe, of the A. S. Aloe Co., has been elected president of the A. S. Aloe Optical Co.

Goodman King, secretary of the Mermod & Jaccard Co., has been nominated for a directorship in the St. Louis Manufacturers' Association.

Among the recent trade visitors in St. Louis was Jeweler Frank Ricketts, of Charleston, Ills.

St. Louis now has a school of optics. It is called the St. Louis Ophthalmic College, and has been opened in the Holland Building.

John S. Hagan, formerly of the A. K. Kurtzeborn & Sons Jewelry Co., has entered the employ of the J. Bolland Jewelry Co.

*"Enclosed find renewal of my subscription. If you would charge ten dollars a year for The Keystone, I couldn't give it up."—S. B. Mohr, Point Pleasant, W. Va.*

### The Credit Question.

The country dealer should not dispense entirely with the giving of credit to customers. Such a manner of doing business is well enough for department stores and other large city stores, where the people as a class are not personally known to the dealer. In the country districts, however, where everybody knows everybody else, and where the people are quite settled in their habits, the retailer is in a better position for determining the credit worth of his customers. It is in the semi-rural communities the dealers are presumed to be able to determine the custom value of all the men in the place. "Cash down" has a discordant sound to the public ear of the village. —Ex.

# SPECIAL DESIGNS




## Like Patience on a Monument

SOME merchants wait for the business that never comes. Some jewelers do better. They hustle around and find it—they work up trade by taking advantage of the demands of the season. We repeat what we said last month that **Class Pins, School Medals, Fraternity Badges,** and other school and college work will be prominent this month. So they will. Here is your opportunity. Seize it, by finding out just what is wanted and sending to us for designs and figures on the work. Our facilities for the manufacture of the above lines are unsurpassed, and we want to co-operate with jewelers in this way. Can't you let us have a trial order?

## Eisenstadt Manufacturing Co.

ST. LOUIS, MO.

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# We Want Every Watchmaker AND Jeweler to Read This

Read carefully through our **"REGENT SPECIALTIES,"** then send us your order; and should any article not prove to your entire satisfaction, return it to us and your money will be cheerfully returned.

| | | | | | |
|---|---|---|---|---|---|
| "Regent" | Brand | Mainsprings for American Watches, | per gross, | $10.50; | per dozen, $1.00 |
| " | " | Mainsprings for Swiss Watches, | " | 10.50 | " 1.00 |
| " | " | Balance Staffs for American Watches, | " | 7.50 | " .75 |
| " | " | Balance Jewels for American Watches, | " | 7.50 | " .75 |
| " | " | Roller Jewels for American Watches, | " | 1.50 | " .15 |
| " | " | H. and M. Hands for American Watches, | " | 2.00 | " .20 |
| " | " | Second Hands for American Watches, | " | 1.00 | " .10 |
| " | " | Clock Springs, 1-day, 3/8-inch, | | | " .50 |
| " | " | Clock Springs, 8-day, 3/4-inch, | | | " 1.00 |
| " | " | Rolled-Plate Vest Chain Bars, | | | " 1.00 |
| " | " | Rolled-Plate Vest Chain Swivels, | | | " 1.00 |
| " | " | Rolled-Plate Separable Stud Backs, | | | " .50 |
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| " | " | Gold-Plated Hat-Pin Backs, | | | " .25 |
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### A FEW MORE OF THOSE 5 SNAPS LEFT

No. 1.—12 gross "V. & P. Brand" Geneva Watch Glasses, including Walnut or Oak Case, $21.00
No. 2.—1 gross Nickel-Plated Watch Keys, including Patent Key Box, . . . 2.25
No. 3.—50 Assorted Clock Hairsprings in Box, 15 varieties, . . . . . 1.00
No. 4.—4 Nickel-Plated Pliers, assorted for OPTICIANS' use . . . . . 2.50
No. 5.—5 ALUMINUM Watch Screw-Drivers, 5 sizes in set, . . . . . .35

**ALL OF THE ABOVE PRICES SUBJECT TO A DISCOUNT OF 6 PER CENT. FOR CASH.**

*This Handsome Solid Oak Cabinet* **FREE**




with **your first order** for One Gross of **"Regent" Mainsprings.**
For all American or Swiss Watches.
Price, **$10.50** per gross; **$1.00** per dozen.
If the 60 Metal Screw-Cap Vials are wanted, add $1.50.

Send for our pocket price-list of *TOOLS and MATERIAL* for 1898.
Send for our *"SILVER NOVELTY"* Catalogue, illustrating the finest line.
Send for our pocket price-list of *WATCHES.* Most complete line.
Send for *ANYTHING* in the Watch or Jewelry line.

**Agents for the Hamilton Watch Co.'s Movements.**

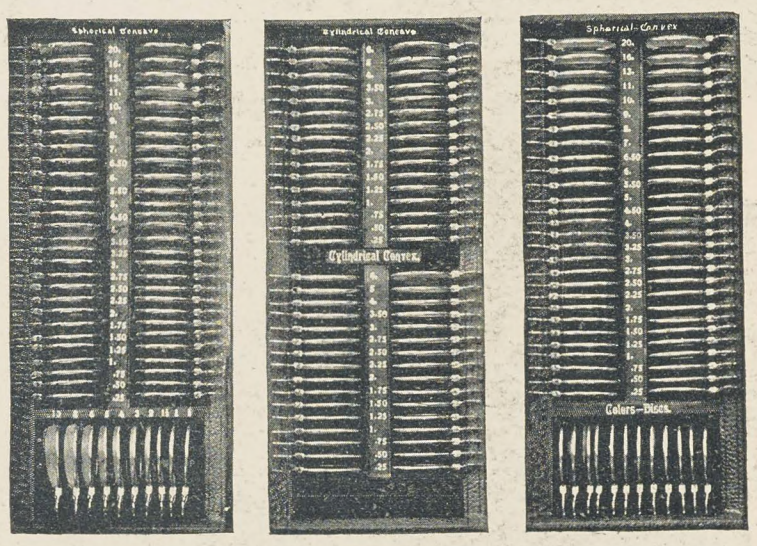
## CROSS & BEGUELIN,

(A CORPORATION,)

*Importers, Exporters and Manufacturers,*
*Watches, Diamonds, Jewelry, Silver-Plated Ware, Etc.,*

**17 Maiden Lane, NEW YORK.**

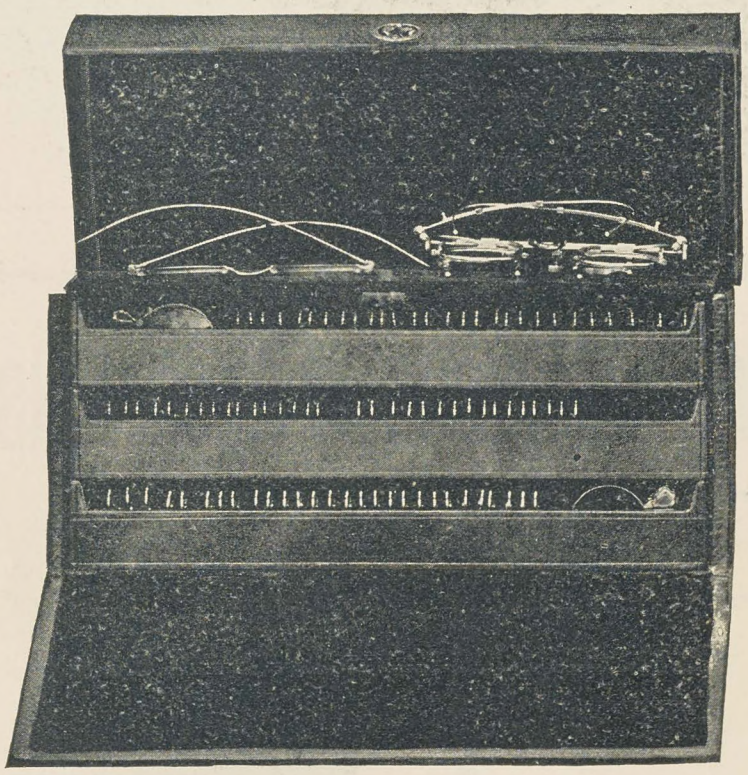
# THE GENEVA TRAVELER
## AT A GLANCE












Here you have our **GENEVA TRAVELER TRIAL-CASE** at a glance. The above illustration shows it in the three sizes in which it is made. The three trays in the upper left-hand corner show it as an office case. In the lower left-hand corner it is shown as it appears opened up. It is easy to see from the illustration its practical usefulness as an office and traveling case. In fact, its strong point is that it combines this feature to a remarkable degree. The demand for it is proving phenomenal in the sale of trial-cases.

The three sizes of this case contain either 1⅛, 1¼ or 1½ inch lenses; **price, complete, $53.00,** less six per cent. for cash. If you desire to use your own lenses, we will furnish the empty case for $15.00, less six per cent. for cash.

## THE GENEVA OPTICAL COMPANY

**67 Washington Street, CHICAGO**

Our New 200-Page Catalogue
is just out. Write for it.



# OPTICAL DEPARTMENT

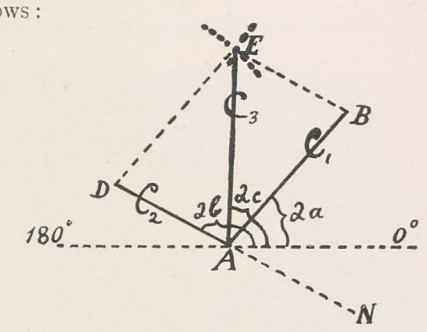
## Reviews of Current American and English Ophthalmological Literature.

### Are Our Present Ideas About the Mechanism of the Eye Movements Correct?

Under this title Dr. C. Weiland, of Philadelphia, gives his views about the movements of the human eye, published in the January number, 1898, of the *Archives of Ophthalmology*. He attacks the current ideas, according to which the six eye muscles are arranged in three pairs, with three axes of rotation, because these views are all based on Ruete's measurements, which were made on only four bodies, and by rather rough methods, over forty years ago. He follows the researches of Volkmann, published in 1869, who obtained his new values from at least thirty very careful observations, and found that the six muscles cannot be arranged in three pairs, but move the eye separately around six different axes of rotation, there being one axis for each eye-muscle. Volkmann, however, could not apply his results to the actual movements of the eye, for he thought "it would be a problem extremely difficult, and, at the present time, well-nigh insoluble, to show exactly how a certain movement of the eye may take place as the resultant of six components." This problem Dr. Weiland has endeavored to solve mathematically. His method allows to determine the exact number of degrees up to which each muscle has to rotate the eye around its own axis to produce a certain movement in accordance with the law of Listing. As for abduction of the eye, he proves that no muscle alone, nor even two muscles combined, can produce a pure outward movement of the ball, but that at least three muscles must co-operate for this act, and that there are *fourteen* different groups of muscles (each including the external rectus muscle) which may produce pure abduction; whilst there are a few more groups that can abduct the eye even without the help of the external rectus muscle. The same complexity of mechanism exists also for the other possible eye-movements. We cannot give more details here, but it would seem to the reviewer that the whole problem of eye-movements, together with all the phorias and tropias, appears much more complex than according to the older views, and that in this light it requires either great knowledge or great daring to operate on the muscles of the eye. We are sorry that the paper has a rather too abstract and mathematical appearance, which must deter many from reading it.

### On the Equivalent Refraction of Two Cylindrical Lenses.

Every optician now and then has to fill a prescription which calls for lenses that have a cylinder on each side. Usually he will grind the lenses exactly according to the formula and thus produce glasses more expensive than the common sphero-cylindrical combinations. His customers, however, may rebel on account of the high charge, while he points to the difficulty of the work that the patients cannot appreciate. Now it is well known that there is no need for such cylindrical glasses, because they always can be replaced by sphero-cylinders, at least for all practical purposes. Why, then, should the optician still grind the bi-cylindrical lenses? Of course, one reason lies in the fact that the formula of the ophthalmologist calls for them and the optician does not want to deviate from it, even in the form. But another reason may often lie in the difficulty of converting a bicylindrical lens into its sphero-cylindrical equivalent. Now there are a variety of methods by which this can be done, the latest one being given by Dr. H. Wilson, in the last number of the *Archives of Ophthalmology*. This method is not quite as elementary as those given by Jackson, Hay and Prentice, and he proceeds on the same lines as Donders and Weiland, the latter of whom has also described a simple instrument, called cylindrograph, made by D. V. Brown, of Philadelphia, which allows of the finding of the sphero-cylindrical equivalent by a graphic method without the least calculation. All methods, of course, come to the same result, which can be stated as follows:




Let the first cylinder, expressed in dioptries, be $C_1$, and the second one $C_2$, and let their axes make the angles $a$ and $b$ respectively with the horizontal lines; then you can find the new cylinder $C_3$ and the angle $c$ of its axis by drawing a line on a piece of paper, 0° — 180° in the diagram. Take double the axis of the first cylinder ($= 2a$), measuring from the zero side of the horizontal line, and put down on the other side of this angle a line $A\ B$ that measures as many units (inches or centimeters, etc.) as there are dioptries in the first cylinder. Thus, having found point $B$, now determine by means of the angle $2b$ and $C_2$ units the point $D$, and then construct in the usual manner the parallelogram $A\ D\ E\ B$. Thus you find line $E\ A$, which, by its lengths in the adopted units, gives the dioptric value of the new cylinder $C_3$, while angle $E\ A\ O°$ ($= 2c$) gives double the angle of the axis of $C_3$. Finally the new sphere $D$, which must be added to the cylinder $C_3$ to get the complete equivalent to the two cylinders $C_1$ and $C_2$, is easily found by the formula

$$D = \frac{C_1 + C_2 - C_3}{2}$$

It only remains to remind our readers that the sign of the cylinders must be carefully considered, for should one be negative, for example $C_2$, we have to put down the units corresponding to the dioptries of $C_2$ in the opposite direction from the point $A$; that is, we have to measure the $C_2$ units off towards $N$, and then proceed as before. This construction agrees exactly with the mathematical formulæ, according to which there is

$$\text{tang. } 2c = \frac{C_1 \sin 2a + C_2 \sin 2b}{C_1 \cos 2a + C_2 \cos 2b}$$

$$\text{and } C_3 = \frac{C_1 \sin 2a + C_2 \sin 2b}{\sin 2c}$$

### The Psychology of the Vision of Children.

In the *Psychological Review*, October, 1897, Cathleen Carter Moore describes chronologically the gradual awakening of the complex functions of the eye. Her observations were conducted on her own child, and are briefly as follows:

First day—The child opened its eyes only by a narrow crack; the eyeballs rolled about in every conceivable position; pupils hardly affected by strong light.

Second day—Child looked intently at a bright object and followed its movements.

Third day—Eye wide open, but movements not co-ordinated.

Eighth day—The movements of the eye seem to be co-ordinated for the first time.

Tenth day—Eyes often co-ordinate, even in the more complex movements.

Forty-seventh day—Observes objects with interest.

Sixtieth day—Looked at strange faces seriously, but smiled at familiar ones.

Twelfth week—Would remain quiet an hour watching trees sway in the wind.

Fiftieth week—Made grimaces at his own image in the mirror, and ceased when he saw by reflection that he was being observed.

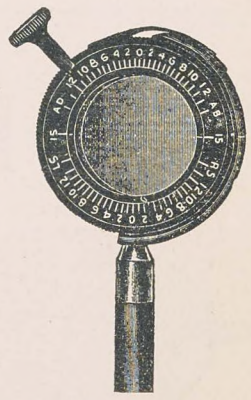
Fifty-eighth week—Recognized a person he had seen for a few minutes three days before, but by whom he had been hurt.

One-hundredth week—Showed no preference for colored pictures over uncolored ones.

This last finding would seem to indicate a very slow development of the color-sense in this special child, as most children begin to prefer colored pictures early. According to Prof. Baldwin (Mental Development in the Child and Race Methods and Processes) his own child at nine months showed a well-established color preference.

### A Duction Indicator and Phorometer Combined.

In the *Journal of the American Medical Association* Dr. A. E. Prince describes a new instrument, which may be regarded as a combination of a Maddox multiple rod with a rotary prism. It consists of two seven and one-half degree prisms mounted in a circular metal frame and caused to rotate in reverse directions, whereby every possible degree between zero and fifteen may be obtained. This *gradual* increase in the power of the prisms he justly considers an advantage over a prism battery, where there necessarily must be a jump from prism to prism. He then describes his instrument and its use as follows:



"The direction of the base of the resultant prism is always in a line transverse to the diameter joining the two zero points, and the strength is always indicated on the margin of the frames opposite the middle point of the base of the prism. Behind this variable prism is placed a Maddox multiple red rod, the axis of which is transverse to the diameter joining the zero points.

"In testing the relation of the recti muscles, the instrument is first used as a phorometer, for by so doing the static (or rest) condition may be obtained before any spasm shall have been induced by the requirement of the muscles to overcome prisms.

"In testing exophoria and esophoria the instrument is held by the observer, before the right eye and rods, horizontal dial out, and the patient is directed to look at a candle flame placed on a level with the eye and before a dark background. The pinion is then rotated until the vertical red image of light is seen superimposed over the candle flame. The quadrant occupied by the base of the prism will indicate either esophoria or exophoria, and at the point where the middle of the base of the prism cuts the quadrant will be found the degree of heterophoria.

"The rods are then rotated into the vertical position, when the red streak will be seen in the horizontal plane; when this is brought in line with the flame the amount and character of the hyperphoria, when it exists, will be indicated on the quadrants corresponding to hyperphoria.

"Having ascertained the relation of the optical axes in a state of rest, the efficiency of the various muscles to overcome prisms is ascertained by converting the instrument into a duction indicator and proceeding as follows: The multiple red rod having been removed, the instrument is held before the right eye as before. The diameter corresponding to the zero points occupies the vertical plane in

(*Continued on page 385.*)

# GOLD FILLED

## Spectacles and Eye-Glasses

Warranted to stand the most severe acid (or any other) tests in comparison

TRADE MARK.

with any Gold Filled goods on the market. Look for our trade-mark.

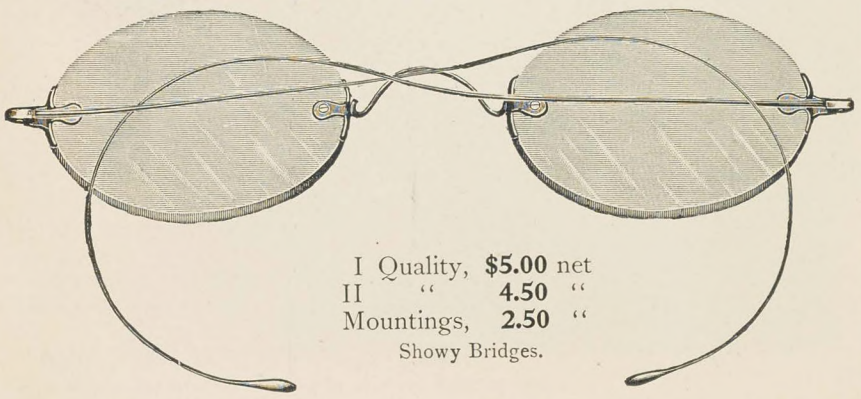
NATIONAL OPTICAL COMPANY

PHILADELPHIA, PA.

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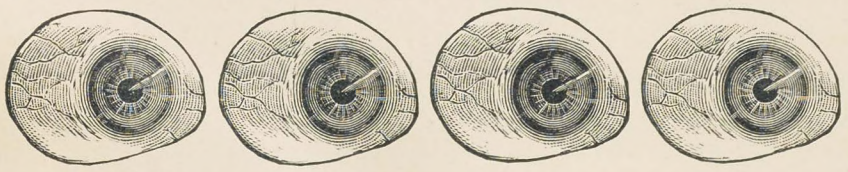
# Nikkul Playted.

*The spelling is wrong, but the Quality and the Prices are RIGHT.*



I Quality, **$5.00** net
II " **4.50** "
Mountings, **2.50** "
Showy Bridges.

**$2.00 each; $15.00 per dozen.** Selection packages sent to responsible dealers. If unknown to us, send reference.



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| N. Plate, Riding or Hook Temples, at | **75** | cents, | **85** | cents and | **$1.00** | per dozen. |
| Bronze, " " " | " | " | **65** | " | **75** | " | " | **1.00** | " | " |
| N. Plate, Straight or Single | " | " | **50** | " | **75** | " | " | **1.00** | " | " |
| Bronze, " " " | " | " | **40** | " | **65** | " | " | **.90** | " | " |

## GEO. MAYER & CO.

134 South Eighth Street,

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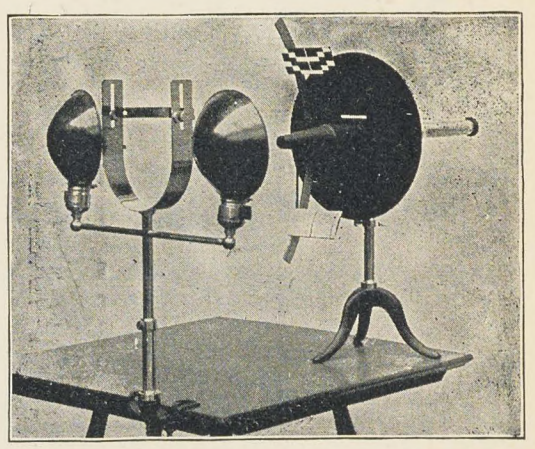
The

# JAVAL OPHTHALMOMETER

Satterlee's Model

### A Few Advantages over other makes

More portable.
Total weight, 12 pounds.
Neater appearance.
More accurate.
Clearer images.
Less illumination.
**Less cost.**
B. & L. lenses.
Height adjustable.
Simplest and easiest to operate.
No extras for chairs, tables, etc.
Both mires movable.
A score of other improvements.



We guarantee the **BEST** instrument in the world, and challenge any one to produce its equal.

96 per cent. of all astigmatism is corneal. Why not measure it and be scientific? You want a Javal Ophthalmometer. **You want Satterlee's Model,** as it is the latest improved instrument.

**Write for Pamphlet, Prices, Cash Discount, etc.**

## The Buffalo Ophthalmometer Co.

Lock Box 34 Buffalo, N. Y.

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# The South Bend College of Optics

ESTABLISHED 1893
INCORPORATED 1896

*(Talk No. 25.)*

### All Jewelers Should be Opticians.

People naturally go to a jeweler to buy their glasses. The fitting of them will come naturally to him if he is qualified. In many towns there are no oculists. The people have to go a long ways for treatment. You might get all this business if you knew how to fit glasses.

A course in the South Bend College of Optics costs $50. A splendid outfit costs a little more. With this investment you can make more money than you can from any other department of your business. Why not make yourself an expert optician? Our booklet, "How to Become a GOOD Optician," tells all about it.

**Dr. H. A. THOMSON,** President,
**South Bend, Indiana.**

**Tuition, $50.00.**
**By mail, $25.00.**

## Among the Opticians.

— G. W. Howe has opened an optical store at Bristol, Conn.

— Jeweler Koch, of Clinton, Iowa, is in Chicago, studying optics.

— H. J. Cain has begun business as an optician in Wareham, Mass.

— B. F. Lupfer, watchmaker, Reedsville, Pa., has taken a course in optics.

— H. H. Cass, optician, of Rutland, Vt., has moved to 36 Lincoln Avenue.

— O. Strathearn has succeeded S. D. Landecker, optician, of Kaslo, B. C.

— Thomas L. Boland has opened an optical store and repair shop in Natick, Mass.

— Dr. Vineburg, optician, Albany, N. Y., has moved to 28 North Pearl Street.

— R. B. Shellinger, optician, of Keene, N. H., has moved into handsome quarters.

— George W. Howe, lately of Saco, Me., has begun business as an optician in Bristol, Conn.

— The St. Louis Ophthalmic College has been opened in the Holland Building in that city.

— Mr. Mansur, of Wyman & Mansur, Burlington, Vt., has taken a course in optics in Boston.

— M. Matson, optician, of Brockton, Mass., opened a branch store last week in Yarmouth, Mass.

— William Dielschneider, McMinnville, Ore., has taken an optical course in San Francisco.

— H. L. Houghton, optician, of Boston, now occupies room 28 in the new Jeweler's Building.

— R. C. Thompson is a late addition to the office force of the Globe Optical Company, Boston.

— The C. L. Merry Optical Company, Kansas City, Mo., has added two new safes to its plant.

— Charles Rogers, optician, Springfield, Mass., recently visited Rochester, N. Y., on business.

— C. Hornaday, jeweler and optician, Keokuk, Iowa, will open a branch optical office in Kahoka.

— J. W. Randall, graduate optician, has accepted a position with H. E. Adams & Son, jewelers, Burlington, Vt.

— The Syracuse School of Optics, Syracuse, N. Y., closed its second term last month, with a written examination.

— L. A. Aloe, of the A. S. Aloe Optical Company, St. Louis, Mo., was recently elected president of the company.

— Fay McFadden, Granville, N.Y., has, among other improvements in his store, added a dark room to his optical department.

— Louis P. Aloe, of the Aloe Optical Company, St. Louis, Mo., has been elected Exalted Leader of the Benevolent Order of Elks.

— Charles E. Monroe, lately of the Monroe-Carter Co., of Southbridge, Mass., has optical parlors in the Y. M. C. A. Building in that town.

— Rhodes Bros., opticians and dealers in photographic supplies in Kansas City, Mo., have made improvements in their optical department.

— H. E. Murdock, optician, of Portland, Me., expects, about July 1st, to open his new store in the Young Men's Christian Association Building on Congress Square.

— Charles Cook, Jr., and Lawrence A. Cook, sons of Charles Cook, Sr., of Fifth and Smith Streets, have opened as opticians at 562 Race Street, Cincinnati, Ohio.

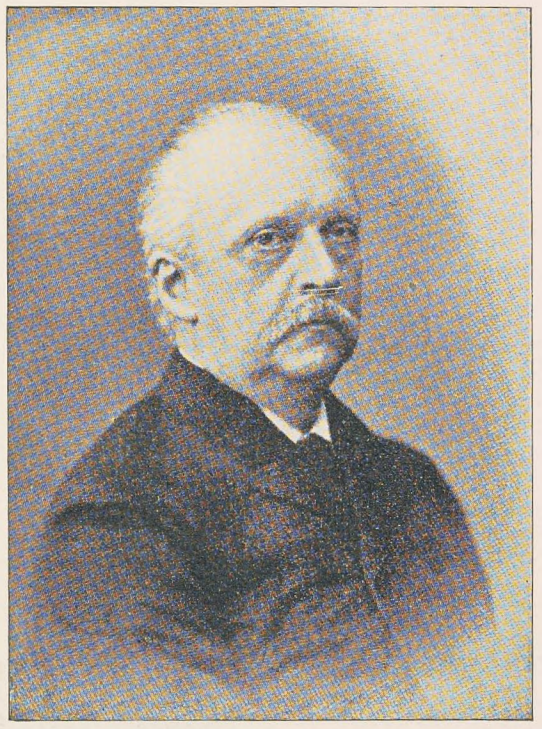
— The Chicago Ophthalmological Society held a meeting last month in the rooms of the Chicago Medical Society. The wholesale optical houses took advantage of the opportunity to display their goods.

— A. A. Taylor, son of C. S. Taylor, Cedar Rapids, Iowa, and A. C. Taylor, his cousin, son of C. D. Taylor, Davis City, Neb., have been to Chicago taking a course in optics.

— By some unaccountable reportorial error the name of P. T. Apple, who opened optical parlors in Haller's block, Herkimer, N. Y., was misleadingly misspelled in our last issue.

— Among the students who recently entered the Klein Optical School, Boston, Mass., are Mrs. E. C. Adams, Sanford, Fla.; A. Schweitzer, Selma, Ala.; Mr. Schwab, Savannah, Ga.; Mr. Marqusee, Syracuse, N. Y.; and Miss F. Marshall, Cambridge, Mass.

**From our Gallery of World-Famed Opticians.**



The portrait shown above is that of Hermann Von Helmholtz, the distinguished discoverer of the ophthalmoscope. This eminent scientist was born in Potsdam, in 1821. He was at first a surgeon in the army, then an assistant in the Berlin Anatomical Museum. He became professor of physiology in Konigsberg in 1849, in Bonn in 1855 and Heidelberg in 1858. In 1871 he became professor of physics in Berlin. Helmholtz was one of the most distinguished men of his day, equally eminent in physiology and experimental and mathematical physics. To the physiology of the eye and nervous system he devoted special attention, and his researches in this branch of science were of great value.

— The $16,000 damage suit of the Utah Optical Co. against David Keith *et al.* at Salt Lake City, Utah, for damage alleged to have been caused to the plantiffs by the action of the defendants in tearing down a store room upon which the plantiffs had a lease, was decided in favor of the plantiffs, the jury awarding them $810 damages.

— The Julius King Optical Co. has recently acquired the sole selling agency for the De Zeng refractometer, and will market the entire output of this instrument. It is reported, that to secure this desirable agency, the Julius King Co. guaranteed to take almost a thousand instruments a year, which demonstrates its faith in the instrument, which has recently been having a large sale.

An omission from the list of lady opticians given in the April KEYSTONE, was the name of Mrs. Mary C. Boyer, the wife of M. A. Boyer, jeweler, of Dunkirk, Ohio, an esteemed subscriber to this journal. Our optical department first suggested to Mrs. Boyer the idea of mastering optics, and a study of "The Optician's Manual" was at once begun. She recently completed a course at the Philadelphia Optical College, and is now a practicing member of the optical profession. Mrs. Boyer is gifted with unusual mental brilliancy, and promises to become a very successful optician.

— W. B. Jewett, recently graduated from the Philadelphia Optical College, has purchased the Wm. Lutz Co.'s business, at 71 E. Seneca Street, Buffalo, N. Y., where he is practicing optics. Mr. Jewett expects to do a very successful optical business.

— The Spencer Optical Mfg. Co., New York City, has recently placed on the market a new trial case which they call "The Paragon." This case is especially designed to meet the needs of jewelers and others who do not wish a high priced test case. The Paragon case is fitted with twenty-five convex and concave spherical lenses. The case is 16½ inches long and 8½ inches wide. Full descriptive circulars will be sent on application.

### A Duction Indicator and Phorometer.

(*Continued from page 383.*)

testing adduction and abduction; the horizontal plane in testing right and left sursumduction. The pinion is rotated until diplopia results, when the amount of prism deviation is read off on the corresponding quadrant indicated by Ad., Ab., R.S. or L.S. In testing R. and L.S. and abduction the prismatic amplitude being fifteen degrees, it is usually sufficient, but in testing adduction an auxiliary prism is required.

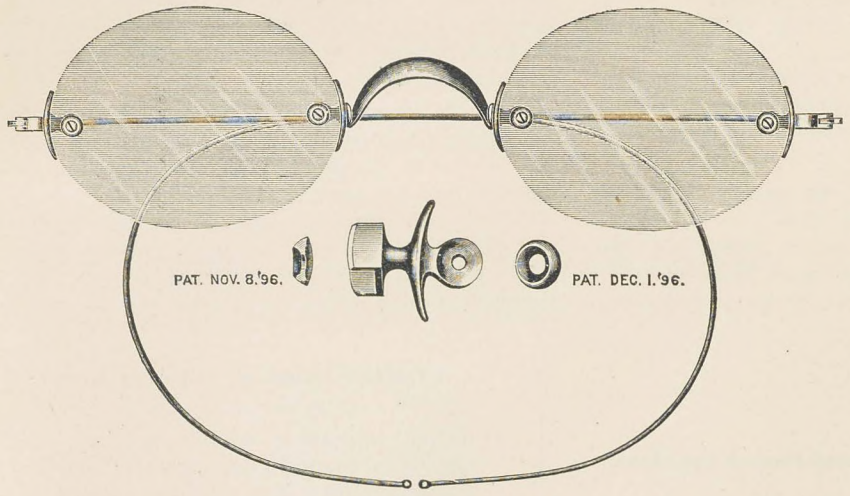
"Auxiliary prisms may be placed in a trial frame, but to economize time and avoid any possible obliquity of the axis, I place before the eyes an ordinary frame in which are mounted two ten-degree prisms base out. The duction indicator will now have an amplitude of from five to thirty-five degrees, depending on whether the action of the variable prism acts in conjunction or opposite to the stationary prisms.

### Effect of the Roentgen Rays Upon the Eyes and Skin.

In a former number of THE KEYSTONE attention was called to the effect of the Roentgen rays on the retina of the eye. It was then shown that this effect on the retina is practically negative. It is different, however, with the effect of these rays upon the external parts of the eye. This question has been examined lately, experimentally, by Dr. Chalupecky, who gives the results in the *Centralblatt für praktische Augenheilkunde*. The right half of the face of a rabbit was exposed to the X-rays, and the exposures lasted from three quarters of an hour to two hours daily. Up to the thirteenth hour of exposure nothing was noticed except a slight contraction of the pupil. Then there appeared moistness of the skin at the outer angle of the mouth. At the same time signs of conjunctivitis appeared. From that time until the twenty-fourth hour of exposure the following changes were observed: The skin upon the whole right side of the face became moist and the hairs fell out, leaving the skin covered with a thin crust. The inflammation of the conjunctiva became first muco-purolent, then purulent. Soon after pus formed in the conjunctival sac, the cornea became hazy and rapidly went on to total opacity. Finally the secretion began to diminish and the lid became adherent to the eyeball (symblepharon). The author describes it now as resembling a case of severe burn of cornea and conjunctiva with a violent caustic. The unexposed side remained unaffected throughout. He then refers to Widmark's article in 1891, "The Effect of Sun and Electric Light Upon the Skin and Eye," in which the author describes certain effects analogous to the above, occurring after prolonged exposure to light, and demonstrates that they are in the main caused by the ultra-violet rays. His conclusions are: That the effect of the Roentgen rays upon the skin and eye, when prolonged, is very severe; that in effect the X-rays resemble the ultra-violet, although many qualities show they are not identical.

*"Enclosed find one dollar. Would rather do without coffee and sugar than without The Keystone."—E. T. Lord, jeweler, Quenemo, Kansas.*

# Ajax Clamp




*Neater. Stronger. Cheaper.*

*Absolutely Interchangeable.*

*This month we talk to you in detail about that point of the Ajax which its name has conveyed to you, in a general way, since its inception—*

## STRENGTH

*The only trouble we encountered was to get a name strong enough to fit the clip.*

*In the old style rimless the clips rest directly on the hole, so that the clamping pressure is brought on the* **rough edge.** *Result is, the lenses split easily.*

*In the Ajax, owing to the concaving, or "dishing," in both the strap and washer, the pressure is brought to bear at* **some distance** *from the hole and on the* **solid glass.**

*Isn't the advantage in our clip self-evident, and doesn't it appeal to you as a mechanic?*

*This and a score or more reasons why it is to be preferred are more fully explained in our circular. Will you permit us to send you one?*

## Pennsylvania Optical Company

*Manufacturing Opticians*

*Send for price-list of our Prescription Work.*

**READING, PA.**

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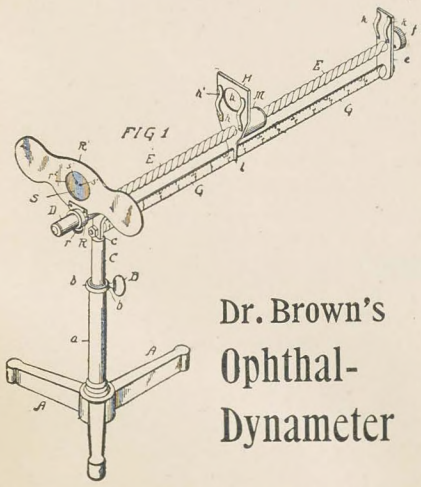
☞ *Address all letters to Dr. C. H. Brown, 1824 Diamond Street, Philadelphia, Pa.*

## The Philadelphia Optical College

INCORPORATED




CHARTERED.




### Dr. Brown's Ophthal-Dynameter

**To measure amount of accommodation, and indirectly to determine the condition of the refraction.**

There are innumerable Optometers, Refractometers, etc., at the command of the optician, all of which, however, are used for the determination of the refraction; and of course they are indispensable. But to the best of my knowledge there is not a single practicable instrument on the market to-day for the measurement of the accommodation.

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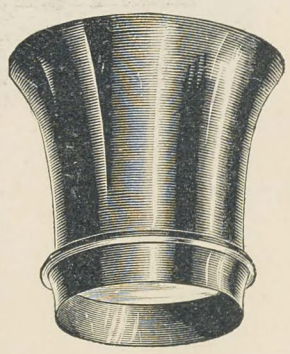
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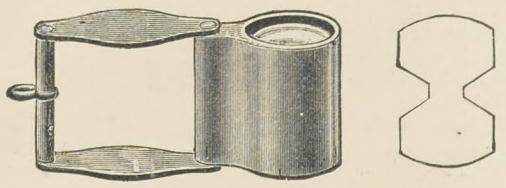
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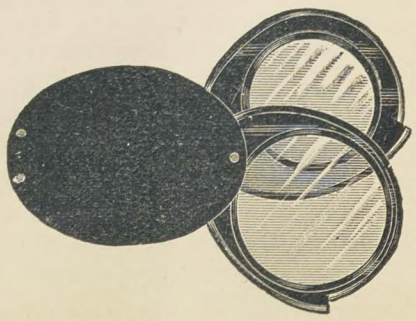


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# The Wave Theory of Light.

In the following we give an article by a correspondent upon a subject which is often neglected in the books on elementary optics. Our correspondent, however, goes too far when he accuses all the authors on optics of undue haste in abandoning the wave theory of light in the discussion of the optical phenomena. Even an elementary book like the ninth edition of Müller-Pouillet's text-books of physics devotes not less than eighty-four pages to the elucidation of the wave theory and its application to the usual optical phenomena. But to explain the interference of light, its diffraction, double refraction, polarization and other subjects of higher optics the wave theory of light is the only one that can be employed in any text-book on optics, because the conceptions of geometrical optics do not suffice there. Indeed rays of light, as such, do not exist in nature, but they are short-hand expressions which simplify the explanation of the common facts of optics immensely, and allow of easy mathematical calculations, whilst the wave theory requires a very difficult and abstract apparatus for its mathematical expression. This is the main reason why our text-books prefer the old geometrical exposition. It will interest our readers to peruse the lucid exposition of our correspondent.

One of the most noticeable faults in text-books on optics is the haste with which their authors, after barely stating it, appear to abandon the wave theory of light, and convey the impression that light is a force operating in straight lines called rays. It is very general to find these authors talking about a pencil of light as a "bundle of rays," and treating refraction as an influence that "bends the rays" of light. So also they discuss the focusing of "parallel rays" by a lens and the effects of the "impact of rays" upon a point when brought to such a focus.

**The Essence of Light**

Light, according to the wave theory (and it is the accepted theory even by these authors), does not consist of rays, but of vibratory waves or pulsations. These waves extend out into space as spheres of vibratory motion. A single wave of light therefore corresponds to the surface of a sphere. A pencil of light is a conic section of a sphere, having a convex progressive base. As a wave is a convex spherical surface, it is important to know the effect of the various optical instruments upon it. Rays are mere mathematical lines, inventions to mark the direction of the progress of the waves. They are radii of the spheres of which the waves are the surfaces. Whatever effect is produced upon them by reflection or refraction is consequential, as they must maintain their perpendicularity to the waves of light, which are the real physical phenomena with which optics should deal.

**Resistance the Cause of Optical Phenomena**

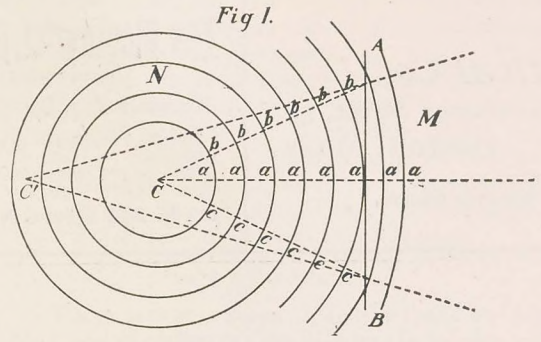
All optical phenomena are the results of resistance to the propagation of waves of light through matter. Ether and air offer some resistance, but it is slight. Water offers greater resistance, glass still greater, the diamond the most of all transparent substances; but the opaque body is the greatest resistant. As the luminous area is made up of luminous points, each of which is the center of its series of light waves, so the opaque area is made up of reflection points, each of which is the center of its series of light waves. It is pencils of light from these reflection points that, entering the pupil of the eye, provide the means for vision of ordinary objects.

**Refraction by a Plane Surface**

Without considering at present the amount of resistance, let us consider the effects upon a pencil of light when passing from one medium into another, and first in passing from a medium of less to a medium of greater resistance; and through a plane surface. In Fig. 1 let $C$ be the luminous point and the circles around it represent waves of light.

The points $a\ a\ a$, etc., may be regarded as the successive positions of a point, not of matter but motion, in one advancing wave; $b\ b\ b$, etc., and $c\ c\ c$, etc., are other points in the same wave. Suppose $a$ is proceeding along a line perpendicular to the surface of resistance, while $b$ and $c$ are proceeding along oblique lines. The point $a$ will be the first point in the wave to enter the new medium. It will feel the increased resistance first. The other points in the spherical base of the pencil will enter the medium successively from $a$ to $b$ and $c$, $b$ and $c$ being last. The effect of the new resistance will be to retard the speed of the wave and all points in it, among them $a$, $b$ and $c$. But $a$ will be first retarded; $b$ and $c$ last. An infinitesimal space of time will elapse between $a$'s entrance into the medium and $b$'s and $c$'s. The result will be to decrease

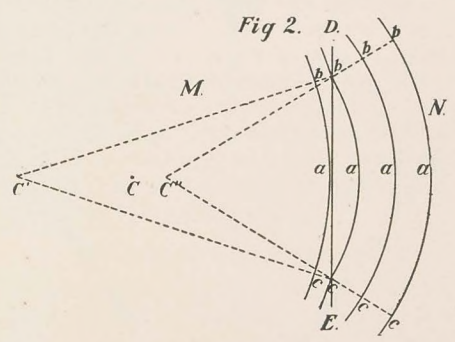
*Fig 1.*




the convexity of the spherical surface or base of the pencil. The waves will be crowded closer together. The amplitude of vibration will be increased. These effects are not separate ones, but all are connected with each other, and are due to the slower rate of speed. As a result of decreased convexity the center of curvature will no longer be at $C$ but at $C'$. The point $a$ is not deviated from its straight course by the retarded speed, because the new center of convexity lies also in the perpendicular; but $a$ is retarded in onward speed as much as $b$ or $c$. The arc $a\ b$ centers now at $C'$; the arc $a\ c$ centers at $C'$. What is refraction? Is the effect of this new resistance upon $a$ refraction, or is the effect upon $b$ and $c$, but not the effect upon $a$, refraction? If refraction is the bending of rays of light, $C\ b$ and $C\ c$ are refracted, but $C\ a$ is not.

Suppose we take this pencil of light as we find it in the dense medium $M$, and allow it to emerge into the rare medium again through a plane surface $D\ E$ parallel with $A\ B$. The point $a$ will be first released from the resistance of $M$. It will at once assume that speed which $N$ permits. The other points of the wave will emerge successively, $b$ and $c$ last. The point $a$ will gain upon the points $b$ and $c$, and the convexity of the wave will be increased; $b$ and $c$ will resume a direction parallel to their original direction, and the center of wave curvature will now be at $C''$, forward of $C$. Fig. 2 illustrates the effects at the second surface.

*Fig 2.*

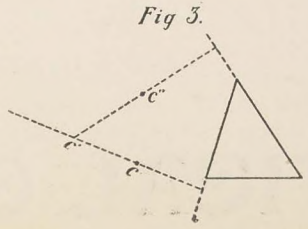



Is there any refraction of $a$? The effect on every point of the wave resulting from its emergence into the rare medium is the same. If $a$ is not refracted, we need a new term to express the effect upon an entire wave of light resulting from its passing from a medium of one density into one of a different density. The direction of the rays is changed as a matter of course, for they are lines perpendicular to the waves, but that is a mere *consequential* thing. The most oblique rays are changed in direction most, but that is a consequential result of all points in a wave being *equally* affected by the *primary* change produced in the wave itself.

**Light Waves Affected by a Prism**

But no matter what plane surfaces we may use to intercept the convex waves of light, we only reduce or augment their convexity. A triangular prism throws the center back on the perpendicular to the first surface, and then, at the second face, brings it forward on a perpendicular to the second surface, as shown in Fig. 3. If the luminous point is at $C$, the entrance of the wave into the prism throws the center of curvature to $C'$. Its emergence into the rare

*Fig 3.*

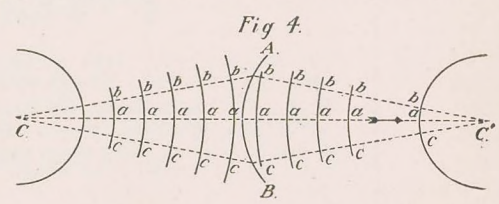



medium brings the center forward on the second perpendicular to $C''$. The emergent wave continues to be convex. After emergence it goes on as an ever-enlarging spherical surface, its effects becoming proportionately weaker as it advances. Double prisms simply cause two sets of convex waves to intersect each other. The most important of optical effects are produced by applying the resistance to the wave in such a manner as *to throw the center of wave curvature forward of the wave itself*, thus making the advancing wave *concave* instead of convex.

**Waves of Light Affected by Lenses**

This effect is produced in all meridians by using a resistant with a convex spherical surface, by opposing one convexity with another. By this means the point $a$ not only enters the new medium in advance of $b$ and $c$, but the resistance to all the points in the wave is so timed that the point $C'$ recedes, even with a slight degree of convexity in the resistant, to infinity, and the advancing wave becomes a plane surface. Increase the convexity of the resistant ever so slightly, and the plane wave becomes a concave wave—that is, the center of curvature is thrown forward of the wave. We may, by further increasing the convexity of the resistant, now bring that center close to the surface, as close as we desire, for we can grind the surface, within reasonable limits of course, to any convexity we desire. Fig. 4 illustrates one convex surface of a resisting medium

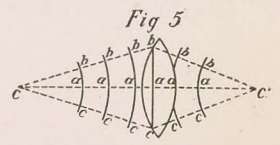
*Fig 4.*




$A\ B$ thus reversing the curvature of a light wave. As these waves approach $C'$, being constantly narrowed down, it can be appreciated that the pulsations at $C'$ are most intense, so intense that concentration of a pencil from each point of an object upon the nerve fibers of the retina gives rise to the sensation which we term vision. The centering of pencils upon any plane surface by the means of a lens (which is a double-surfaced resistant) and the recentering of the new series of pencils from that surface upon the retina gives the sensation of the object as though the waves had come from the object itself.

If the resistant has two convex surfaces, the second, by releasing the points $b$ and $c$ in advance of $a$, and the other points successively toward $a$, would bring the center $C'$ close to the surfaces. Fig. 5 illustrates the case.

*Fig 5*




The farther the point $C$ (the luminous or reflection point) is from the lens, the less convex is the wave. $C$ may be at such distance that the wave will be plane, or so nearly so that no account need be taken of its curvature. We can now, by a concave resisting surface, increase its convexity. So also if we desire to do so, we can make the resistant more convex or concave in one meridian, giving the wave an elliptical form.

**The Deficiencies of the Ray Theory**

The "ray" treatment fails to give any conception of this recasting of the wave from a convex to a concave surface, toward whose center of curvature it is proceeding, and where all the energy of the pencil comes within such minute limits that its effects will be great. This fact is the most important one in the whole field of optical science. It certainly gives the idea of a focus not before entertained. Rays of light cross each other and center at all points in an illuminated or daylight space. But there is never a real focus except when the convex waves of a pencil are metamorphosed into concave waves, and as such come to a center similar to the luminous or reflective point from which they start.

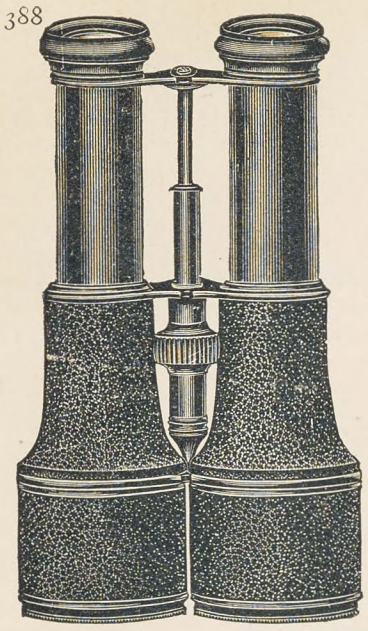
The study of optical instruments and the eye from this standpoint throws new light upon the whole subject. The connection of resistance with refraction and reflection is important. We may work out an "index of resistance" that gives a better idea of optical phenomena and their cause than the "index of refraction," which is mathematical—an abstract calculation apparently not connected with the physical phenomena it is supposed to explain.

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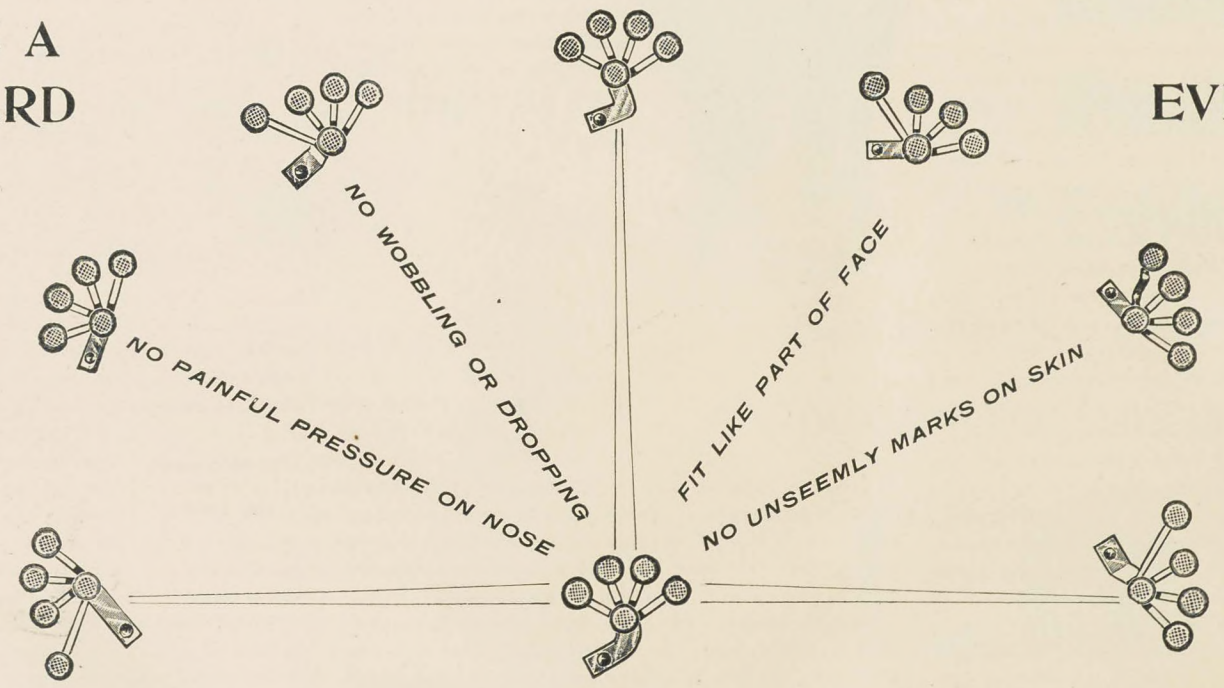
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CHAPTER I.—INTRODUCTORY REMARKS.
CHAPTER II.—THE EYE ANATOMICALLY.
CHAPTER III.—THE EYE OPTICALLY; OR, THE PHYSIOLOGY OF VISION.
CHAPTER IV.—OPTICS.
CHAPTER V.—LENSES.
CHAPTER VI.—NUMBERING OF LENSES.
CHAPTER VII.—THE USE AND VALUE OF GLASSES.
CHAPTER VIII.—OUTFIT REQUIRED.
CHAPTER IX.—METHOD OF EXAMINATION.
CHAPTER X.—PRESBYOPIA.

Chapter XI. commenced in the December, 1896, issue.

## CHAPTER XI. (*Continued*).

### HYPERMETROPIA.

A hypermetropic eye requires some of its accommodation for distant vision, and hence for close use there is a deficiency of that amount; therefore the amplitude of accommodation present in a hypermetropic eye at a given age would be less than is indicated in the above table for the same age; and the amount by which it is less would indicate the degree of defect.

For instance, if on examination a patient thirty years of age has a near point of eight inches, representing an amplitude of accommodation of 5. D., it is at once evident there is a deficiency of 2. D., and a presumption of the existence of a hypermetropia of that amount.

With the same amplitude of accommodation it is evident that the near point is farther away in hypermetropia than in emmetropia, as is shown in the above instance, where the near point is at eight inches instead of five and a half inches, the normal distance. In this way the existence of a latent hypermetropia can often be determined, that could not, perhaps, be detected by the usual test with trial lenses.

### THE TESTS FOR HYPERMETROPIA COMPARED.

In considering the value of the tests that have been described for the determination of hypermetropia, the optician soon discovers that the two objective tests (ophthalmoscopy and retinoscopy) are somewhat difficult to learn. Of course he knows that the theories involved and phenomena observed are simple and easily understood, but it requires much time and practice to become an expert in the use of these methods. Therefore they may be considered subordinate to the test by the trial lenses, which is really the decisive one. And then, finally, even this test yields to that which is given by the patient himself when he commences to wear the glasses which have been ordered.

### REMARKABLE ACUTENESS OF VISION IN HYPERMETROPIA.

In a description of this defect of hypermetropia it should be noted that hypermetropic eyes sometimes enjoy an unusual degree of acuteness of sight, and, in fact, when young, they are very apt to boast of their power of vision. They can not only read all the No. 20 line without an error when seated at twenty feet, but will also call off the letters on the next line quite as readily. The parents of such a boy will tell how the child can see things with an ease and distinctness which they themselves do not possess. They may laugh at the suggestion of any defect in the eyes of their child, and ridicule the thought of glasses as long as the child can get along without them.

### PREJUDICE AGAINST GLASSES.

There is no use denying the universal prejudice that has existed in the public mind, but which, fortunately, is not so pronounced now as formerly, that glasses are an injury when they can be avoided, for fear the patient may become so dependent upon them as never to be able to remove them. This is certainly not good grounds for an argument, but the proper light in which the matter should be viewed is that if Nature is dependent upon a glass which affords relief and removes strain, such means of assistance should not be withheld.

If the pain in hip disease is arrested by a properly-adapted support, should the splint be denied the patient because he feels his dependence upon it? Is there any more reason why a patient with defective eyes should go through life without the relief that glasses only can afford, simply because of unfounded prejudice against their use?

A case is related of a physician who refused to allow an oculist to examine his children's eyes, with the statement that no child of his should ever wear glasses with his consent. The children suffered from weekly attacks of sick headaches, and finally one was fitted with a + 3.25 D. lens, another with the same sphere combined with 5° prisms, and the third was also highly hypermetropic and astigmatic. Immediate relief was afforded in each one of these cases by the correction of an optical defect which had rendered their early life one of suffering. This is not an uncommon experience with oculists and opticians.

### SICK HEADACHES.

There is every reason to believe that there are thousands of sufferers from sick headache who are struggling through life with an uncorrected hypermetropia, who have made unsuccessful efforts for relief at the hands of doctors and drugs, and who have in despair abandoned all hope of cure. This is an interesting study for the ambitious optician, and forms a wide and promising field for the exercise of his skill and judgment.

The statement is made by eminent authorities that the gastric symptoms which accompany typical attacks of sick headache are not due to "biliousness," or "disordered liver," or "dyspeptic conditions," or "the use of tobacco to excess," or "living too high," but that they are reflex in character, and, in the majority of cases, due to hypermetropia. These attacks often occur without any explainable cause, and they are sometimes even cured by eating, drinking or smoking, while at other times they are aggravated by similar indulgences. Every known remedy in the pharmacopœia has been tried, at first with success, acting almost as specifics, and later proving entirely valueless, until finally life is rendered really unendurable.

The brain and central nervous system preside over all the functions of life. If now this ruling spirit is disturbed by the irritation caused by a constant strain to use the eyes in the face of an uncorrected hypermetropia, may not this disturbance manifest itself by an interference with the normal functions, as shown by nausea, vomiting, dizziness, and other evidences of impaired animal life? This reasoning is plausible, and although they are the views of an extremist, they contain much of truth, and suggest a train of thought and experiment that can be successfully carried out by every intelligent optician.

### RECAPITULATORY REMARKS.

Before concluding this chapter on hypermetropia, at the risk of possible repetition it seems desirable to mention again a few of the important points that should be borne in mind in adjusting glasses for the correction of this defect.

In obtaining the history of the case the optician should ascertain whether or not the patient has been wearing glasses, and if so, what kind, what number, and how long. Even though they are entirely unsuitable, they may serve as a guide in making the test and prevent the prescription of similar glasses, which the optician might be led to give if he was not thus warned.

In testing the vision at twenty feet, every letter in the No. 20 line may seem black and the outlines of the letters clearly defined, and the presumption would be that the patient was emmetropic, *but he might be hypermetropic;* the determination of which depends on the acceptance or rejection of a convex lens. A weak lens is used (generally + .50 D.), and if the patient rejects this it is reasonable to infer there is no hypermetropia present (barring those cases of latent defect, which do not enter into our consideration now).

If, on the other hand, this convex lens is accepted, it is fair to assume the case is one of hypermetropia. Then a stronger one is tried, and still a stronger, the patient all the while looking at the No. 20 line, until he says the letters are slightly dimmed or less distinctly seen. This lens is then to be compared with the previous one and with several weaker and stronger, until finally the one chosen is the strongest that affords the best vision. If the degree of defect is found to be considerable, the lenses may be increased .50 D. at a time, but ordinarily the better plan is to change only .25 D., and thus allow the accommodation to gradually adapt itself to the convex lenses.

It is customary to fit one eye at a time, but this monocular vision is never as satisfactory with either eye as is binocular vision, and, in fact, if there is not much difference in the acuteness of vision of the two eyes, they may be tried together, when a stronger lens will usually be accepted. When the refractive power of the eyes varies so much as to produce discomfort, then they must be measured separately and the best eye accurately fitted, and an approximate correction given to the other eye, not allowing a great enough difference between the lenses to cause discomfort. In these latter cases the eyes will gradually accustom themselves to the glasses, so that in time a much greater difference will be borne than at first seemed possible.

When presbyopia begins to steal over the hypermetropic eye, as it does earlier in life than normal, and the accommodation becomes unequal for reading and fine work, two pairs of glasses are required, the new and stronger glasses for close use, while the old and weaker glasses which the patient has been wearing for his hypermetropia, and to which his eyes have become accustomed, remain good for distance. A person with a hypermetropia of 2. D. and wearing glasses of that strength to correct it, would, in the ordinary course of events, at the age of forty-five years have a presbyopia of about 1. D.; such a person would therefore need + 3. D. for reading, and continue to wear his + 2. D. for distance.

### ARTIFICIAL HYPERMETROPIA, OR APHAKIA.

Aphakia is the term used to represent that condition of the eye in which the crystalline lens is absent from its position in the center of the pupil. This may result from luxation of the lens and its removal from the plane of vision, or if the capsule of the lens be punctured or ruptured its substance may be dissolved in the aqueous humor and removed by absorption.

By far the most frequent cause, however, for the absence of the lens is its extraction from the eye by one of the various operations for cataract. Inasmuch as the crystalline lens is the principal refracting medium of the eye, its removal leaves the eye intensely hypermetropic and destitute of all accommodative power; it is in a state of absolute hypermetropia. It has been conclusively proven that in the absence of the crystalline lens there remains not the slightest trace of accommodation. This fact establishes the correctness of the universally adopted theory (if, indeed, it needs any corroboration) that the power of adjusting the dioptric apparatus of the eye for close vision depends entirely upon changes in the convexity of the crystalline lens.

In chapter VI of this work on The Physiology of Vision will be found an illustration of candle-flame images in the eye, three in number, the first being erect and reflected from the cornea, the second, also upright, is formed on the anterior convex surface of the crystalline lens, and the third is inverted and reflected from the posterior concave surface of the lens. When the flame is moved up and down, the two erect images move with it and the inverted one in an opposite direction. In aphakia there remains only the single image on the cornea, the two reflected from the surface of the lens being absent.

The eye being left in a condition of absolute hypermetropia, it becomes necessary to measure its degree, which can be readily accomplished by means of the test by trial lenses. Strong convex lenses will be required to take the place of the absent lens, the strength of which will, of course, be influenced by the previous condition of the refraction of the eye; if formerly hypermetropic, stronger glasses will be called for, and if myopic, weaker convexes will suffice.

If the degree of myopia was as high as 10. D. or more, its aphakial condition might readily be one of emmetropia.

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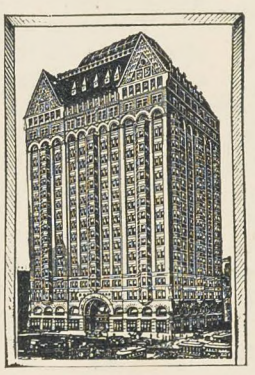
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# THE DARK ROOM IN OPTICS

ST. JOHNSBURY, VT., April 2, 1898.

OPTICAL EDITOR THE KEYSTONE:

Kindly inform me how best to arrange my rear room for use as a dark room, I am at present using *daylight only*, and find this very satisfactory for both ophthalmometer and *test case*. Dr. Webster, of New York, uses daylight for both the ophthalmometer and test case usage. Is a dark room to be preferred where one has a splendid daylight? In fitting for presbyopia I find my daylight excellent. Will I get as good results by using electric light in fitting presbyopes? I do not like to spoil my room by using partitions. Shall I darken everything by using heavy curtains over windows, or only curtain off a portion of the room and use sliding curtains on poles and rods? I then could easily shift and use daylight if I chose.

In what number of THE KEYSTONE does the dark room of the Connecticut optician appear? It was published some months ago. It is a model room.

Yours truly,

CHAS. E. SIMANTON.

The above communication is typical of many we have received relative to the matter of artificial light in eye-examination. Appreciating the importance of the subject, we have obtained the views of several well-known opticians, and take pleasure in publishing same, supplemented by our own ideas.

A. Jay Cross, president of the New York State Optical Society, said:

The advantages of the dark room seem to me to be so manifold that it becomes almost an absolute necessity to any one who essays to do high-grade optometrical work. As to the arrangement of a dark room, I would add that any arrangement ought to answer which would permit of satisfactory objective and subjective tests. For the former, artificial light seems imperative, while for the latter the nearest approach to daylight in the matter of illumination would seem to be indicated, as modern test-types, I believe, are based on the well-known visual *angle of five minutes*, and a north light.

The days for careless or indifferent ocular measurements have passed. Every optician must keep up with the march of progress, or be forced to become one of the "Has beens" in his calling. To "keep up" indicates that he must depend, for the correctness of his work, upon means other than the intelligence of his patients, and this, in turn, would seem to point in the direction of the *ophthalmoscope*, as well as of the *skiascope*. Never having seen either of these valuable instruments used with success in daylight, I think it follows that a dark room is quite as necessary to a refracting optician as even his test-types are.

L. L. Ferguson, president of the New York City Optical Society, said:

To say that a dark room is not indispensable to the optometrician, would be equivalent to stating that the opthalmoscope and retinoscope are unnecessary, and that the test case is all that is needful to conscientiously examine an ametrope's eyes.

The first objection to the use of daylight is because of its variable intensities, resulting in what are apparently different degrees of visual acuity, when formulas which are the results of different testings are compared, caused by the visual perceptions being more acute when the light is brighter, more vague when the light is duller. So whether the optometrician be either a subjective or objective operator, it is best to have the illumination of the test cards to be invariable, which certainly cannot be accomplished by daylight with its varying moods throughout the day or number of days.

If the optometrician be content to place implicit reliance upon the answers of his clients, I would say that to him a dark room would be unnecessary; but if he were possessed of scientific spirit, which would impel him to go farther so as to determine the *a priori* cause of subnormal vision, I should say that a dark room would be imperative. An operating room of inky blackness is not necessary, unless it be used to duly impress your client with something out of the ordinary. Neither is the length of the room of any particular moment; for actual skiascopic testing a length of over six feet is waste, for the reason that except under a few extraordinary conditions five feet will be found to be the maximum distance permissive of using the retinoscope; of course if the objective test be supplemented by the subjective test case, twenty feet or more would then be necessary.

The nature, shape and position of the light to be used in skiascopy has been a fruitful theme for the past year or so, but the discussion has been devoid of practical results. The relative position of the light from the reflecting mirror is of no importance, unless a concave mirror be used; but as nearly all expert objective operators are of the opinion that the plane mirror is incomparably the best, it is sufficient to state that the relative position of the light is of no earthly importance when the plane mirror is used.

Next to the perfection of the mirror itself, in importance, is the size of the light. A great many contrivances are made with diaphragms of different sizes to hood the light; but my experience has proved to me at least that the larger the luminous source, the easier it is to detect the minor errors of refraction.

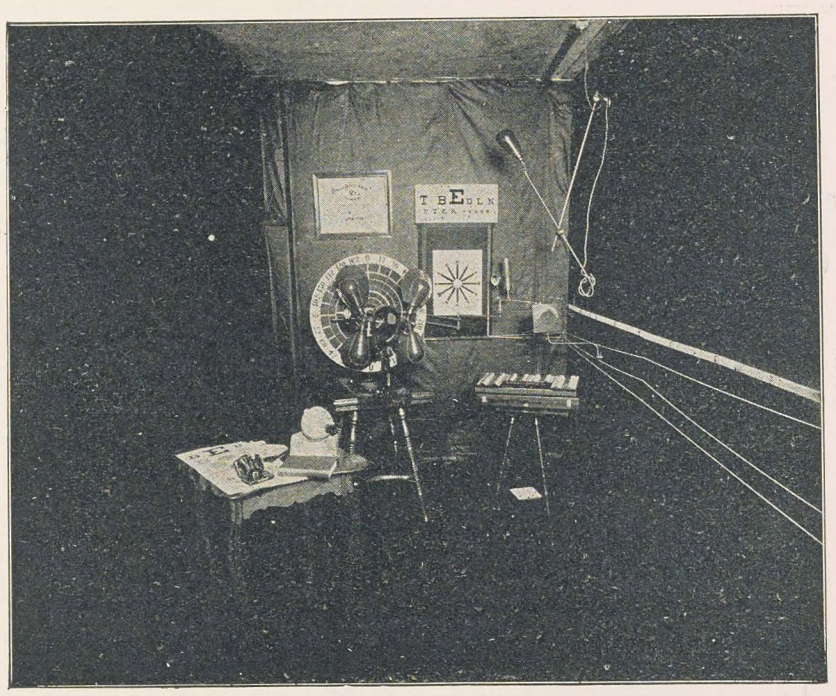
When a small pencil of light is used, as in the case of a diaphragmed lamp, it is represented in the reflex as a small point of light, seems to be unduly sensitive to the concordant action of the retinoscope, and does not permit of a rapid diagnosis, the operator being compelled to tediously traverse each meridian before a diagnosis can be made, much less a computation. Not so with a larger flame, say of at least three inches in diameter, such as a thirty-two candle frosted electric light, its greater size naturally making the transit of the whole light across the pupil comparatively a much slower procedure; and as our mental and retinal perceptions are more acute when observing a slower moving object than when viewing an object relatively much quicker, the correctness of the larger light should be obvious. As to the position, the description in Hartridge has been tried and never found wanting, *i. e.*, directly above and a trifle back of your client's head, so that the direct light does not shine into his eyes.

The use of the ophthalmoscope, direct method, is almost impossible, unless the room be moderately dark, and must be quite so to achieve results with the indirect method; and while the retinoscope is generally depended upon for the refractive correction, the use of the ophthalmoscope, particularly the indirect method, should not be discarded, considering how invaluable its uses are in determining the exact status of the interior of the eye, and which in ninety-five out of a hundred cases discloses why, after the proper correction is attained, the visual acuity is still subnormal. Also where the tests are made by daylight, the ciliary muscles are generally in a state of tense action, thus disallowing correct estimation; while in a dark room, with nothing to focus the vision upon, the ciliary are uninfluenced and true results are then obtained.

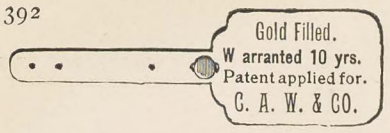
A. Martin, president of the Pennsylvania Optical Society, said:

I have been using the dark room for several years. Every case I test in this way, always being careful to examine with the ophthalmoscope in order to discover whether disease is present or not. My principal use of the

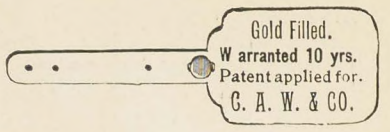
(*Continued on page 393.*)



We here reproduce a cut of the dark room of F. Lyman, Bridgeport, Conn., which our correspondent refers to as "a model room." It measures eight by twenty feet, and the walls are made perfectly black by using dull-finished black cloth. A white tape line ruled off in feet indicates the distance at which the patient sits. The charts, or distant test-type, are pasted on black cloth which is fastened to common shade rollers, and are arranged as follows: Four rollers are arranged one above and a little in front of the other, just enough to allow the cloth to be drawn up or down without rubbing. A cord is fastened in such a manner that each roller can be drawn and let roll back. By this means the type can be changed so that patients may not become familiar with the letters. The electric light is fixed on a double-jointed rod. This rod is supplied with ball joint, is screwed to the wall and can be placed in any desired position, as near as six inches or as far as eight feet from the charts. For ophthalmoscope and retiniscope use there is a parallel gas bracket with a common Argand burner and a sheet-iron chimney with a funnel-like opening, in front of which there is a strong plano-convex lens, about three inches in diameter. This, like the electric lamp, can be turned in all directions. The ophthalmometer is placed on an oak stand with easy-running rollers and connected with the electric light circuit with flexible wire, and can be placed in any part of the room. An astigmometer is at the front of the room, and so placed that the electric lamp used for lighting the charts and test-type can be put directly behind it.




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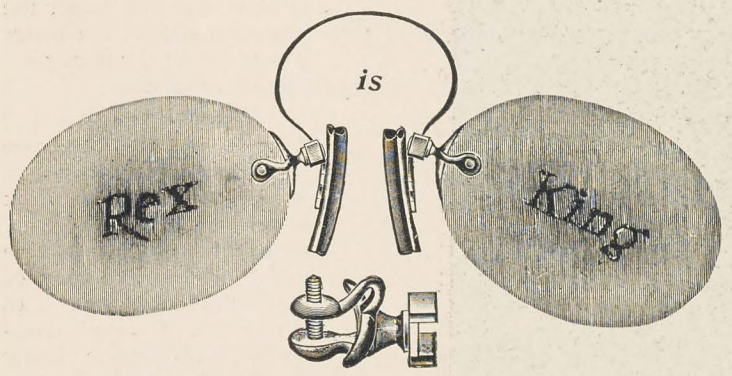



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| **No. 1.** | Light weight frame, broad saddle bridge, 1 eye, per doz., | 8 K. | **$18.00** | 10 K. **$21.00** | 14 K. | **$28.50** |
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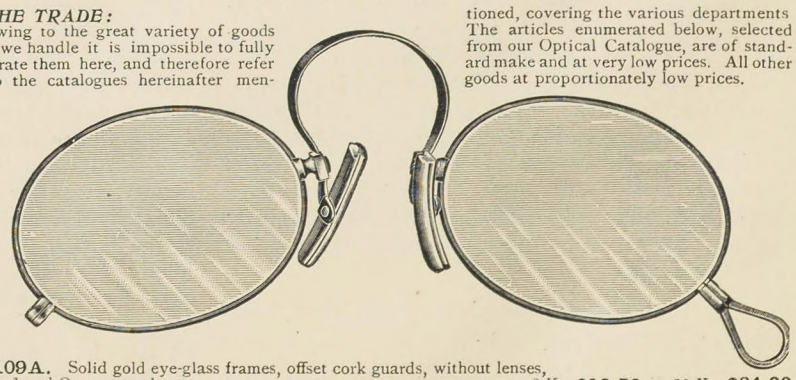
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| **No. 120.** | Rimless eye-glasses, 10 K. mtgs., offset cork guards, with ring for cord, pcx. or pcc. lenses, per dozen | | **20.00** |
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**INTERCHANGEABLE LENSES.** Per doz. pairs.

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| First quality pcx. or pcc. lenses, 1 and O eye, polished edges | **$1.00** |
| First quality cement bifocal convex lenses, 1 and O eye | **3.75** |
| First quality perfection bifocal convex lenses, 1 and O eye | **4.50** |

### The Dark Room in Optics.

(*Continued from page 391.*)

dark room, however, is for determining errors of refraction. I use an argand burner covered with an asbestos shade with small and large openings, which can be regulated at the will of the operator. I use both plain and concave mirrors, as in some cases a better result can be obtained with one than the other. I very carefully note the amount of error of refraction, and whether it be myopia, hyperopia or astigmatism. After having done this, I then proceed to test subjectively, and endeavor, as far as possible, to make the objective and subjective tests agree. In some cases I can bring out very much more error in the dark room than I can otherwise, while in other cases the result is just the reverse; so that time, patience and good judgment are required in order to get the very best results.

I consider daylight the very best for subjective testing, but the trouble is it is not always the same. The morning light will differ very much from the afternoon light, on account of the position of the test room. Electric light I use always, and consider it best for all practical purposes. Care, of course, should be taken to have the patient in such a position that the eyes will be shaded from the direct rays of light. This can be done by having the light thrown on the test types by means of a reflector.

I consider a dark room a necessary adjunct to the optician's outfit, and think no optician who pretends to do this kind of work should be without one. As to the best arrangement of the dark room, I would say that, if it were possible to have the dark room fifteen to twenty feet long and about six feet wide, better results could be obtained than with one one-half the size. The eye of the patient should be directed to an object far enough away in order that the rays of light entering the eye from it will be parallel. The operator should be seated immediately in front of the patient and about one meter away.

I have found it very convenient, instead of using the trial case of lenses, to have a number of lenses mounted in a revolving disk, which I call a skiascope, and which is made adjustable to any height, so that it can be readily arranged before the eye of each patient.

The results obtained in making my dark room examinations have been most accurate, and have enabled me to determine errors of refraction in cases of young children and illiterate people, which would have been utterly impossible without its use. If it is not possible to have a dark room fifteen to twenty feet long, I would suggest that a small opening be left in the curtain, through which the patient is directed to look, which will answer almost the same purpose.

William E. Huston, Greenfield, Ind., vice-president of the Indiana Optical Society, said:

The dark room is an absolute necessity to all who seek proficiency in the practice of optometry. The kind, arrangement, and mode of operation within that room are of much less importance to the student optician than the mere possession of some sort of place that can be partially darkened.

*Imagination* is a great factor in all subjective examinations. I am, therefore, not prepared to admit that the pin-hole and other simple subjective tests will *always* evidence the presence of functional disorder. I go further, and assert without fear of contradiction by unprejudiced opticians who have gone deeply into the science of ophthalmology, that recourse to the dark room is the only means by which the actual qualitative and quantitative conditions of visual defects may be unerringly determined without the use of a mydriatic.

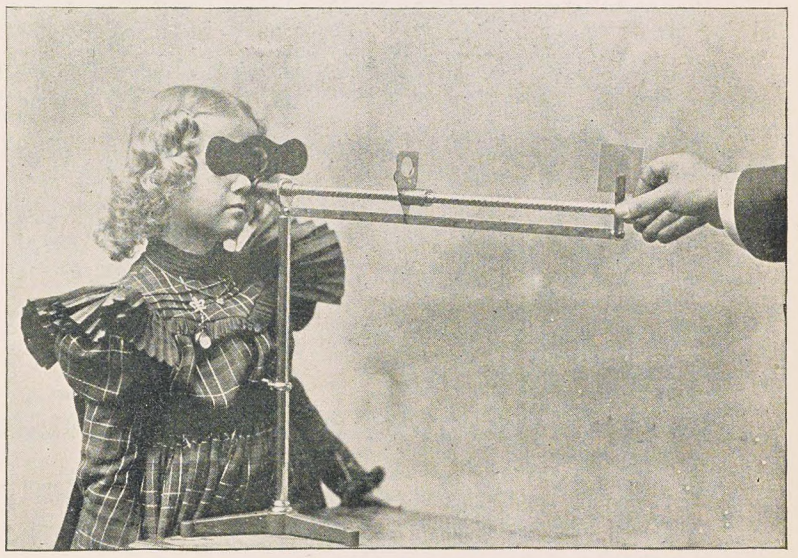
Artificial light has many advantages over natural light for use in the dark room, despite recent claims to the contrary. Uniformity of electric, gas, or oil illumination alone more than counterbalances the few advantages that can be enumerated in favor of sunlight. For retinoscopy and ophthalmoscopy it can be more readily condensed, produces greater illumination, and can be quickly changed in position. In using daylight one is compelled to move the patient; with artificial, one can move the source of illumination. Those who diagnose eye diseases know that the nature of many pathological conditions can be more quickly determined by the use of artificial light.

My examination room and dark room are combined. A room ten by twenty feet; a north window six by twelve feet at one end, in front of which stands my operating chair. At the opposite end are two doors, one opening into a waiting room, the other behind my counter. Between the doors, on a dead black wall, are arranged three sliding panels with openings in the center of each, through which may be displayed different lines of type. The panels run in grooves and are operated by cords and pulleys, by means of which I can stand beside my operating chair and with a single finger pressure disclose any line or character I desire. Immediately behind my operating chair is my lamp—an arrangement of my own in which I use natural gas. My window is supplied with heavy drawn curtains; thus I can make both subjective and objective examinations without moving the patient.

I presume my method of procedure in examinations is different from that practised by the majority of opticians. I begin with the ophthalmoscope; thus am able to determine at once whether it be a case for oculist, physician or optician.

It would seem hardly necessary to add anything to the foregoing remarks of men so foremost in the profession. But it may be useful to put forward in a few words the principles according to which the whole question ought to be treated. We must remember that our visual organs have developed and are used most in daylight, and that, therefore, daylight would seem to be the most appropriate light for the subjective tests. The patient uses his glasses mostly in daylight, and for that reason his glasses ought to be selected under the same conditions, that is, in daylight. It is true that daylight varies at different hours on the same day and at the same hours on subsequent days, and, therefore, gives no real standard to work by. But it has been shown by scientific researches that within pretty broad limits of illumination the acuity of vision (as measured by Snellen's letters with a visual angle of five minutes) is not measurably affected; while it must be admitted, of course, that very dim light may reduce the acuity from $\frac{20}{20}$ to $\frac{20}{30}$, or even $\frac{20}{40}$, and that very bright light may raise the acuity from $\frac{20}{20}$ to $\frac{20}{15}$, and even to $\frac{20}{10}$. However, such extreme grades of illumination can usually be guarded against, on the one side by avoiding dark corners of a room, and on the other side by shunning direct sunlight for the illumination of the test-cards. Furthermore, the examiner can always judge whether, in a reduced light, the visual acuity is still normal, by comparing that of the patient with his own, in the same illumination. One more reason why daylight would seem to be preferable to artificial light for the subjective tests lies in the fact that daylight contains all the colors of the spectrum in even proportion, whilst in the artificial light the red rays usually predominate. This may seem irrelevant, but if we consider that the human eye has to use about two dioptries of accommodation more to focus a point of blue light than to focus one of red light, it will be evident that in such a yellowish light the refraction may be found different from that established in a white light. Such a room for subjective tests ought to be at least fifteen or twenty feet long, and the light from the window ought never to strike the patient's eyes directly, but ought to come from his side, or preferably from his back. The wall against which the test-cards are placed ought not to show very bright objects.

However, while we would prefer daylight for the subjective tests, we believe, also, that artificial light is the best for the objective tests, and that a dark room is a necessity to the progressive optician for his objective tests—ophthalmoscopy, skiascopy and ophthalmometry (or keratometry). Such dark room need not be absolutely dark, if only the illumination be reduced sufficiently to allow the pupil to become more dilated. No bright objects ought to attract the patient's eye, at least not in the direction he has to look during the examination, in order to relax the accommodation as much as possible. In size, the dark room for this purpose need not be larger than six by ten feet. Of course it is possible to use the dark room also for the subjective tests; but then it ought to have a length of at least fifteen feet, and be provided with sufficient means for a good ventilation, especially where gaslight is employed. For the reasons we have given above, however, we would not recommend the dark room for that purpose.



The Ophthal-Dynameter.

### Dr. C. H. Brown's Ophthal=Dynameter.

The above illustration shows a new instrument devised by Dr. C. H. Brown, Philadelphia, for the measurement of the amplitude of accommodation. It is known as an ophthal-dynameter, and its appearance and mode of operation can be inferred from the cut. The movement of the test object nearer to and farther from the eye of the patient, is controlled by a milled head and the hand of the optician. The test letters that are used are modelled after the block letters of Snellen, which places the refraction and accommodation on a uniform basis. A hair dynameter also accompanies the instrument, and yields even more accurate results than the letters.

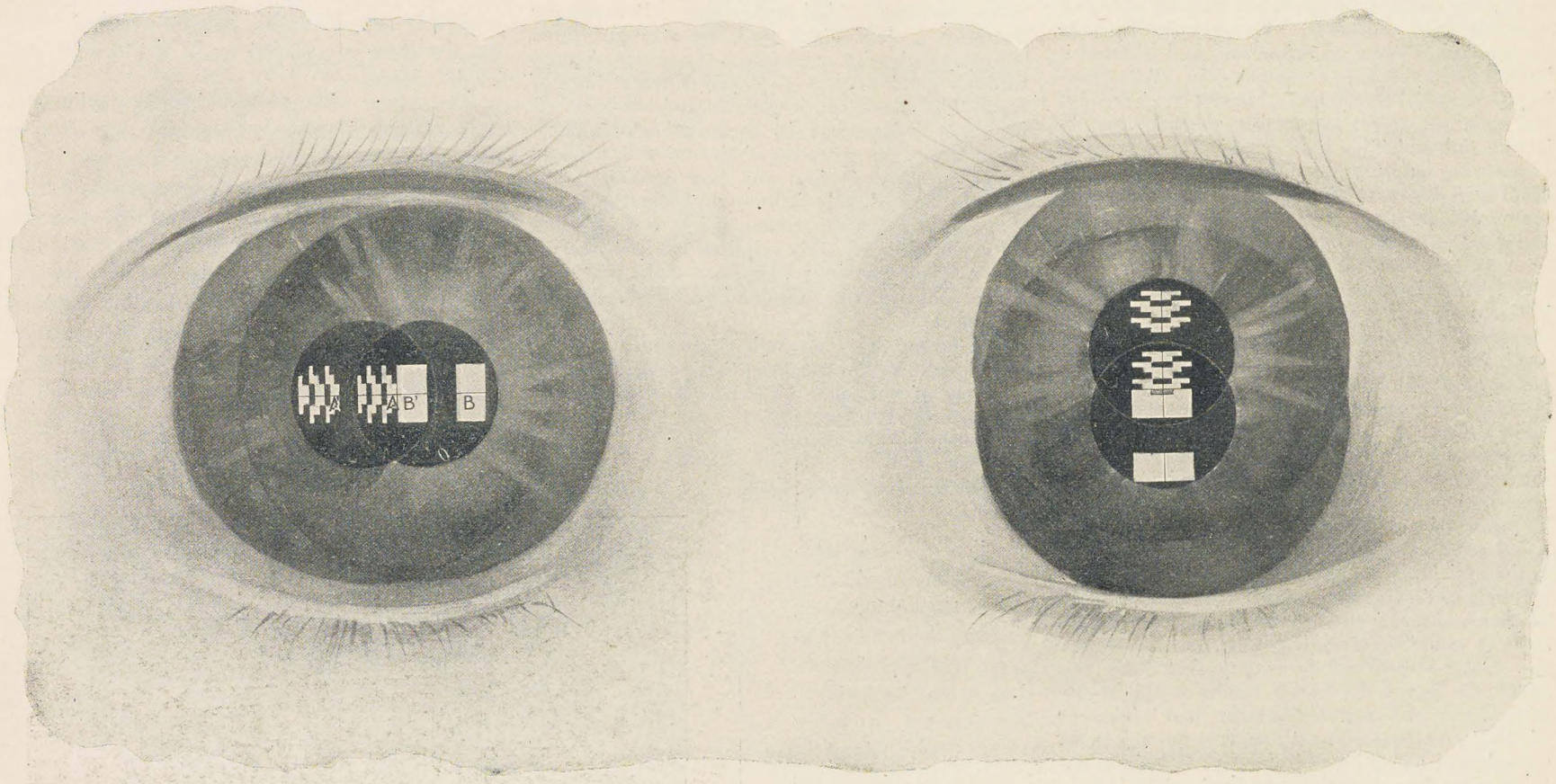
The scale is so divided that when the closest point of vision is found, the near point (punctum proximum) can be read off in inches, and the amplitude of accommodation in dioptrics, at one and the same time.

The ophthal-dynameter affords an immediate and exact correction for presbyopia, and by comparison with the table in the directions which accompany the instrument, the existence of hypermetropia or myopia can also be presumed.

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AS DETECTED BY

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Normal.

**Vertical Meridian.**
I. D. Astigmatism,
requiring + Cylinder.

## The Ophthalmometer can be used by any Optician.

It shows the corneal astigmatism positively.
Its readings can be obtained in two or three minutes.
It is a great time-saver, and insures accuracy in the great majority of the cases.
Our pamphlet gives full explanations and directions for its use.

The basis of a successful optical business is accurate fitting and the conviction in the minds of your patients that you are competent. Fumbling over your patients, and fitting by repeated guesses, is fatal.

The Ophthalmometer increases your business, because it enables you to fit QUICKLY, POSITIVELY and ACCURATELY.

It pays for itself in a few months. No Optician can afford to be without it.

## THE HARDY OPHTHALMOMETER is the BEST

**Because** it has the best definition.
it is the simplest and easiest to operate.

*EVERY INSTRUMENT IS GUARANTEED.*
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**131, 133, 135 & 137 Wabash Ave., CHICAGO.**

## Optical Questions and Answers.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. Questions will be answered in the order in which they are received. No attention will be paid to anonymous communications.

To enable us to answer questions satisfactorily and give proper advice in the management of cases submitted to us, it is essential that we be furnished with a complete history of each case and accurate information on the following points:

1. Age. (If not possible to give exact age, always approximate.)
2. Have glasses been previously worn? How long and what number?
3. Visual acuteness of each eye, and what improvement glasses afford.
4. Range of accommodation (without glasses and with them).
5. Evidence of astigmatism (as shown by radiating lines).
6. Test for muscular insufficiency.

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*"A. E. M."—In your optical answer to "M. O. L.," page 211, March Keystone, where party complains that top of column looks wider than the bottom, I believe this can be ascribed to the fact that cylinders are not set to the right axis. This is my experience.*

Such complaints do not necessarily prove that the axis is not correctly placed, as they may occur even after the most accurate adjustment of cylinders, until the eye accustoms itself to the new conditions. In this case the trouble seems to be due to the failure to wear the glasses constantly enough to become accustomed to them.

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*"A. R. C."—Why should a person when fitted correctly with prisms of 1° have a sensation of wanting to step up all the time when walking?*

A prism affects the act of convergence, and as we often judge of the distance of an object by the amount of convergence required to fix it, it can be easily seen that a prism, by changing the convergence, would also change the apparent distance of the object. Therefore, if the ground was made to appear nearer, the person would be impelled to step up. Usually the muscles soon adapt themselves to the new conditions, and in a few days this sensation passes away.

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*"E. W. R."—Lady, about fifty years of age, went to a well-known oculist to consult him about her eyes four or five years ago. He had her use drops in her eyes, and after several examinations prescribed glasses for her, which I find are as follows: R. E. + 1.00 Sph. ○ + .50 Cyl. ax. 180°; L. E. — 3.00 Sph. ○ + 2.50 Cyl. ax. 150°. She cannot wear them for either reading or distance. I examined her eyes carefully and found that she could read $\frac{20}{40}$ readily with R. E. + 0.50 Cyl. ax. 180°, but with the L. E. she requires a — 4.00 Sph. ○ + 2.50 Cyl. ax. 150° to enable her to read $\frac{20}{40}$ nicely. She could read $\frac{20}{30}$ readily with the two eyes as above corrected, but they made her eyes tired. Now the strange thing about it to me is this: For reading the smallest type the best I could do for her was R. E. + 1.75 Sph. ○ + 0.50 Cyl. ax. 180°; L. E. + 2.50 Cyl. ax. 150°. She could read equally well with either eye, and better with both eyes. She said they felt very comfortable and restful to her eyes, and she had them on for some time, too. Can you explain this?*

It is quite unusual to employ atropine in a patient of this age, but perhaps this oculist had some special reason for doing so. But at any rate, the fact remains that the glasses that were fitted by means of the atropine were unsatisfactory, while those adjusted without any drug by our correspondent were much more comfortable. This only serves to strengthen our position as to the uselessness of a mydriatic, because the convex glasses prescribed by means of it are always too strong; and further, shows that a careful optician can obtain satifactory results without any drugs.

There is nothing strange about the glasses prescribed for reading, when we remember that a person of this age would normally have a presbyopia of about 2. D. In this lady's right eye a + 1.75 D. suffices, combined with the convex cylinder, while in the left eye the myopia neutralizes the presbyopia, and only the astigmatism calls for correction for close use of eyes.

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*"H. M. M."—Lady, aged twenty-one. Has worn the following glasses about four years: O. D. — 2.00 Sph.; O. S. — 3.75 Sph. By careful examination with trial case, the following results were obtained: O. D. V. = $\frac{20}{200}$ +; O. S. V. = $\frac{15}{200}$. The following correction was made: O. D. — 1.75 Sph. ○ — 0.50 Cyl. ax. 120° = $\frac{20}{20}$; O. S. — 2.50 Sph. ○ — 0.75 Cyl. ax. 60° = $\frac{20}{20}$; binocular vision = $\frac{20}{15}$. The strange feature of this case is that the lady can read, with ease and rapidity, ordinary agate type (such as appears in first paragraphs at the head of this page) without glasses, while holding the reading matter fully twenty inches from her eyes. She could also read same type at four inches by using considerable effort. She also tells me that in reading her music, while rendering it at the piano, she always lays aside her glasses, and that she sees her music plainly. She appears the picture of health, and says she is not much troubled with headache. How do you explain above case?*

This is a case of myopia, with a slight degree of astigmatism, and the correcting lenses afford a very satisfactory acuteness of vision. There is nothing strange about the fact that this lady without her glasses can read as close as four inches and as far away as twenty inches, for the following reasons: The normal near point at twenty years of age is four inches, and this lady's myopia (which adds to the refractive power of the eye) ought to enable her to read half an inch closer, or at three and a-half inches. Then again, in myopia vision is clear out to the far point, beyond which it becomes indistinct. This lady doubtless uses her right eye, in which the far point is twenty-three or twenty-four inches, and therefore she can see clearly out to this distance. In other words, her myopia gives her a range of accommodation from three and a-half to twenty-three inches, within which limits reading is possible.

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*"C. G. L."—Gentleman, aged twenty-five years; never wore glasses. V. $\frac{20}{30}$ both eyes. O. D. + .37 Sph. ○ + .25 Cyl. ax. 180° = $\frac{20}{20}$. O. S. counts fingers at thirty inches. Has granulated lids or trachoma both eyes, but O. S. could not see very well before inflammation set in; don't know whether it was fluid or not. I can't help it with glasses. Eye turns in; looks well, in fact better than R. E. Dilated the pupil and found nothing wrong. Lens is all O. K., and with ophthalmoscope optic nerve, vessels, disk, retina and all seem in good shape, except perhaps the blood-vessels were enlarged a little; not much, if any. Got perfect view and traced most of the vessels to the end. Takes a — 2.00 in the clip to see clearly. Eye seems in perfect order. Why can't it see? The trouble began last November; has doctored some—not much. Will go off for treatment soon. Eyes do not hurt; not even with the granulation on lids. I understand that this is a case for an oculist, but why does not that eye have vision?*

Trachoma and granular lids are synonymous terms, and when the disease has existed for any length of time and passed on to the second and third stages, vision becomes very much impaired and oftentimes entirely useless. If this gentleman's both eyes are affected with the disease, it seems strange that the vision of the right eye is normal, while the left eye can only count fingers. The most plausible explanation is that the cornea of the latter is more heavily clouded than the former. The wonder is not so much that the left eye is so bad, but how the sight of the right eye can remain so good in the face of this inflammation. An impaired vision due to a cause of this kind of course cannot be corrected by glasses.

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*"R. W."—Man, aged seventy years. L. E., without pin-hole disk, could not see largest letter at twenty feet; with pin-hole disk, V. = $\frac{20}{200}$; with + 5. V. = $\frac{20}{30}$, and with + 8. could read finest print on hand card at fifteen inches. Cannot use right eye at all. This eye has gradually grown this way for twelve years. For last four years has not been able to see with right eye. Pin-hole disk didn't improve, neither would any lens. By holding my hand about seventeen inches in front of eye, slightly to patient's left (he looking straight forward), he could count number of fingers; but if I moved hand out of this line (in any direction) he could hardly distinguish hand. The sclerotic coat looks red or bloody. Pupil of each eye has a milky appearance, and lower lids very red. Been using glasses for thirty years. Patient had pair of glasses + 4.5 with a red tint (purchased from a peddler) which he had been using for about four years. Said he wore them, when out of doors, because they shadea his eyes. Kindly say what trouble is with right eye, and if above lenses would do for left eye.*

We are unable to determine from the description just what the trouble is in right eye; it may be cataract or it may be disease of optic nerve. An ophthalmoscopic examination would be necessary for a correct diagnosis. But one thing seems certain, and that is this eye is beyond the reach and help of glasses. If the sclerotic is bloodshot and the lids red and inflamed, a physician should be consulted for treatment.

The patient will have to depend on his left eye, and if + 5. D. and + 8. D. are the lenses that afford the best vision for distance and for reading, they are the proper ones to prescribe. At this age a vision of $\frac{20}{30}$ by means of + 5. D. is very satisfactory, and would indicate that he has one good eye in serviceable condition.

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*"C. L. G."—Gentleman, aged fifty years; never wore glasses; always been nearsighted; never could find glasses to fit. Tested as follows: V. = $\frac{20}{40}$ poor in both eyes. O. D. V. = $\frac{20}{40}$; with — 4.00 Sph. ○ — 1.00 Cyl. ax. 180° = $\frac{20}{30}$ good. O. S. V. = $\frac{20}{30}$; with — 4.50 Sph. ○ — 1.00 Cyl. ax. 165° = $\frac{20}{30}$. Both eyes, V. $\frac{20}{30}$ good and some letters of $\frac{20}{20}$, which is fairly satisfactory for distance. Cannot see to read with them, but by reducing Sphs. only to — 2.00 or to — 2.00 ○ — 1.00 Cyl. ax. same as before, each eye can read nicely at fourteen inches type No. 48. Each eye takes 10° prism base in to fuse lamp, and he has had so much headache lately that he came to me for relief. A tendency to squint or close one eye when looking close. What would you prescribe?*

No doubt this patient has always been nearsighted, but we cannot think the defective vision is due to myopia or myopic astigmatism entirely. If 4 D. of myopia were present the vision would be much less than $\frac{20}{40}$; and again, when the vision is as good as $\frac{20}{30}$, the correcting lenses ought to easily raise it to normal. There is some more serious trouble in this case than appears on the surface, which is proven by the fact that patient could never find glasses to suit. Our correspondent must be very careful in prescribing glasses or he will have trouble in store, for a patient of this age who has never worn glasses always has great difficulty in becoming accustomed to them.

This is a case in which an ophthalmoscopic examination should be made, in order to determine if there is any other cause for the defective vision than a refractive error. Usually we recommend the correction of optical defects first and attention to muscular insufficiencies later; but in this case at this age it is possible the eyes may be more comfortable without concave lenses, especially as the acuteness of vision is not so low. Therefore, as there seems to be a large degree of insufficiency, which may be the possible cause of the headaches, we would suggest the use of plane prisms first, commencing with weak ones and increasing if necessary as long as they seem to be indicated.

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*"E. S. S."—I would like to ask you a question. In the "Optician's Manual," October, 1897, Keystone, the writer gave examples in fitting spectacles by knowing the accommodation of the eye. I have tried it, but cannot make it work; perhaps he can explain.*

1. *Age twenty-three. Acuteness of vision both eyes, $\frac{12}{20}$. Manifest Hy., + .75 D. Range of accommodation, six to twenty-three inches, no spectacles. Amplitude at twenty-three, 10.*
2. *Age twenty-one. Acuteness of vision, both eyes, $\frac{12}{20}$. Manifest Hy., + .50 D. Range of accommodation, three and one-half to forty-four inches, no spectacles. Amplitude at twenty-one, 10.*
3. *Age twenty-nine. Acuteness of vision, both eyes, $\frac{15}{20}$. Manifest Hy., + .25 D. Range, three to twenty-seven inches. Amplitude at twenty-nine, 7.*
4. *Age twenty-six. Acuteness of vision, $\frac{40}{20}$. Manifest My., 2.50. Range of accommodation, three and one-half to thirty-seven inches. Amplitude at twenty-six, 9.*

*Now, if your writer, from the above examples, will tell me what lenses to put on those persons (provided only Hy. and My. is the trouble) and explain in a few words how and why he does it, or whether the idea cannot be carried out in daily practice, and why it cannot, I will thank him very much.*

The emmetropic eye possesses a certain definite amount of amplitude of accommodation for each year of life, which is diminished by hypermetropia and increased by myopia. When a patient is examined and the amount of accommodation is found, we ask the age and then compare with the table (in April number), which shows the amount that should normally be present. If below normal, we suspect hypermetropia; if above normal, myopia.

In case No. 1, the near point of six inches represents 6.50 D. of accommodation; the normal accommodation at this age is 9.50 D.; hence there is a deficiency of 3. D. and a presumption of a hypermetropia of this amount.

In case 2, the near point of three and a-half inches represents 11. D. of accommodation; if the patient is twenty-one years old, this is 1. D. in excess, and a presumption of a myopia of this amount.

In case 3, the near point of three inches represents 13. D. of accommodation, and as patient is twenty-nine years old, there is an excess of 6. D. and a presumption of a myopia of that amount.

In case 4, the near point of three and a-half inches represents 11. D. of accommodation, which is 2. D. in excess for this age, and a presumption of a myopia of this amount.

In determining the degree of optical defect, all the features of the case must be taken into account. In case No. 3, where there is presumably a myopia of 6. D., we know this is impossible with an acuteness of vision of $\frac{15}{20}$. This does not really impair the value of the test, but simply raises the question as to whether the near point was correctly ascertained. The truth is, it would be impossible to find a near point of three inches in a person twenty-nine years of age with an acuteness of vision of $\frac{15}{20}$. There is an error somewhere, and most likely in the way the near point was measured or the size of the type that was used to determine it. The rule is to use the smallest size reading type, and measure the closest point at which the patient can read them; he should read them aloud, and not depend on his word that he can see them.

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*"E. F. R."—Young girl, aged fourteen years. Vision $\frac{20}{40}$; R. E. only $\frac{20}{60}$, L. E. only $\frac{20}{40}$. No headache. L. E. turns up at times only. Find that — .50 Cyl. ax. 180° each eye gives $\frac{20}{25}$ vision almost, but left eye still turns upward. With Maddox bar and the first examination she accepted 5° prism base in, and it took from 18° to 20° prism base up in right eye to bring bar of light through candle. Second examination, made a few moments ago, was practically the same, but did not accept prism base up right eye quite so well as left eye. Turns upward at times only; it surely cannot be a case of misplaced macula. What would you suggest in this case, as it seems to me a hyperphoria of this amount is very unusual?*

The first and most important point is to determine the condition of the refraction. In a girl of this age there should be no trouble to raise the acuteness of vision to $\frac{20}{20}$ (or even a little higher), at least in the best eye, and therefore we are inclined to think that the concave cylinder mentioned is scarcely the full correction. The examination of the refraction must be repeated several times with this object in view.

We would naturally expect to find the poorest vision in the eye that deviates, but in this case the right eye has the least vision, and it is the left eye that turns up. However that can be explained, the muscular equilibrium must be tested on several different days, and if the insufficiency is found to amount to as much as 18° or 20°, it is too great to be corrected by prisms, and an operation would be advisable.

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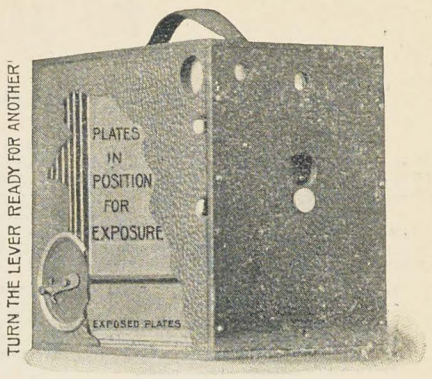

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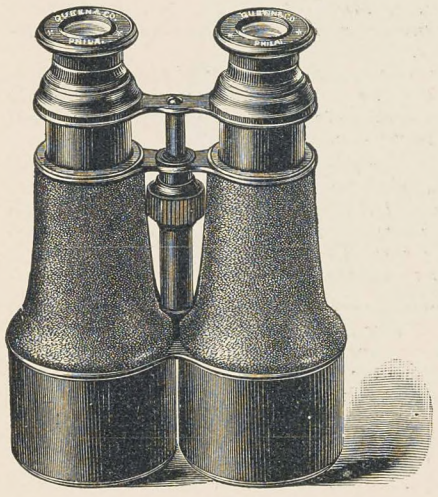



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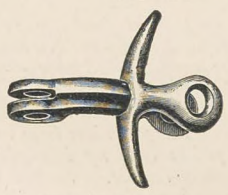
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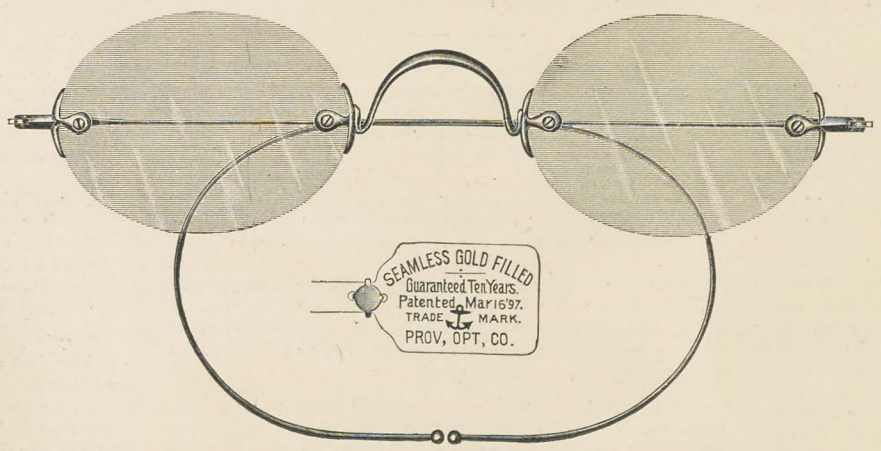
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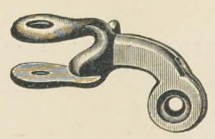
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# The Optical Societies.

## New York State Association of Opticians.

The fourth annual meeting of the New York State Association of Opticians was called to order at 2 P. M., at Yates Hotel, Syracuse, on April 20th. Three new members were received, a series of lectures to be given before the society was arranged for, and means for increasing the membership and influence of the society discussed. Two papers were presented by Messrs. F. L. Swart, of Auburn, and James H. Morse, of Syracuse, on the same topic, namely, "How to fit up an Optical Office, and How to Handle Customers."

The routine business and papers having been disposed of, the society proceeded with the annual election, with the following result: President, F. L. Swart, Auburn, N. Y. (re-elected); vice-president, James H. Morse, Syracuse, N. Y.; secretary, Wm. D. Oertel, Syracuse, N. Y.; treasurer, C. B. Hibbard, Pulaski, N. Y.; board of directors, consisting of above named and three others, C. J. Fuller, Phœnix, N. Y.; G. N. Luckey, Baldwinsville, N. Y.; J. W. Hoyt, Hannibal, N. Y.

A vote of thanks was extended to retiring officers, and after congratulatory remarks upon the splendid condition the society finds itself in, both as to increase in membership during the past year and good financial standing, and benefits derived from an attendance at the meetings, adjournment was made until June 15th. Two new books were added to the optical library.

## Optical Society of the State of New York.

The following circular, under date of April 12th, has been sent to the opticians of New York State:

*To the Members of the Optical Society of the State of New York:*

The coming summer meeting of this society, will be held in the Court of Appeal's room, at the Town Hall, in Saratoga, N. Y., beginning at two o'clock P. M., on Tuesday, June 21st, and lasting, with intermissions, until the following day. Special rates of $2.50 per diem have been secured for members at the Hotel Worden. It is hoped that this meeting will surpass, both socially and scientifically, those of 1896 and 1897.

Every member is hereby personally invited to contribute a paper upon some subject of interest to opticians. As the programme will not be announced until after roll call, at the first session, ample time will thus be given for full preparation.

During the executive session, which will probably be held on the first day, the policy of the society for the forthcoming year will be fully discussed.

The recent attempt at "sneak legislation" by a few oculists, who aimed to have the State aid their private practice, is no doubt familiar to all. The gallant fight and victory won by opticians, through organization, should prove an incentive to those who are not members to now join our ranks, and thereby strengthen the cause that is common to us all.

Membership application blanks are inclosed herewith, and it is hoped that many new names will be added to our roll, and that many new faces will appear at the Saratoga meeting. Respectfully, H. A. APPLETON,

By order of Executive Committee. Secretary.

## Pennsylvania Optical Society.

A regular meeting of the executive committee of the Pennsylvania Optical Society, was held in Philadelphia, on April 12th. C. A. Longstreth was elected secretary in place of T. Haines Moore, resigned, and J. F. Brinkerhoff was elected second vice-president.

The secretary was directed to write and congratulate A. J. Cross, president of the New York Optical Society, on his success in having defeated the proposed bill aimed at the opticians, in the State legislature.

The president was requested to bring before next meeting some definite plan for having a course of lectures delivered, this coming season, on eyes and the necessity and use of the ophthalmoscope.

In view of the attempted legislation in New York, also Massachusetts, Iowa and North Carolina, the secretary was directed to appeal to all the opticians throughout the State, calling their attention to the likelihood of some such attempt being made at Harrisburg.

This association, with a charter from the State of Pennsylvania, and with members from nearly every county in the State, already stands as a bulwark for the defense of opticians, and asks them to help in the work by becoming members. The society does not want to stir up strife or attempt any legislation, but if anything prejudicial to the rights of opticians be proposed, it stands ready, a strongly organized body, to protect its members. And to be as strong as possible the society would like to have every optician in the State of Pennsylvania enrolled as a member.

## An Enthusiastic Organizing Optician.

We take pleasure in presenting to our readers the portrait of Harry P. Holmes, jeweler and optician of Des Moines, Iowa, who has taken the preliminary steps towards the formation of an optical organization in his State. Mr. Holmes is a firm believer in the protective potentiality of organization, and the recent threatened anti-optical legislation in his State is evidence enough of its necessity. Jealous of the development of the optical business, medical influences have been recently at work to legislate the optician out of existence, and only by combined and intelligent action can such sinister attempts be frustrated. Mr. Holmes, by special circular, recently apprised his brother opticians of Iowa of the situation, and his timely action is certain to result in the materialization of a State optical society of formidable dimensions.



Harry P. Holmes.

Mr. Holmes is equally well conversant with the jewelry and optical business. While yet at the Des Moines High School he spent his evenings in a jewelry store. He subsequently worked on a salary for some years, and in 1885, went into business for himself, and was successful from the start. He was among the first jewelers in Des Moines who took an optical course, and is a graduate of two of the best optical colleges in the country. His optical deparment is supplied with the latest appliances, among them being an opthalmoscope, a retroscope, an opthalmometer, and a De Zeng refractometer, He has successfully wooed business prosperity, and owns his own home and other property. His jewelry department is large, and in charge of two competent men, and he has been voted inspector for the C. & N. W., and C. R. I., and P. Railway Companys ever since the inspection service was inaugurated. THE KEYSTONE has confidence that his hopes of a strong optical organization for Iowa will be fully realized. It is expected that a meeting, with a view to organization, will be held in Des Moines next month.

## Optical Society of New York City.

The Optical Society of the City of New York is rapidly increasing in membership. At the regular April meeting the following were elected members: F. Lyman, Bridgeport, Conn.; C. F. Andrews, Newark, N. J.; J. F. Duncan, Hoboken, N. J.; E. Jackson, Long Branch, N. J.; W. H. Reisner, Hagerstown, Md.; F. A. Eastman and A. Wiener, New York City; S. W. Slocum, Bayonne, N. J., and J. S. Judkins, Brooklyn, N. Y.

The following were proposed for election at the next meeting: R. Kabus, A. Kahn, C. Cordeau, L. J. Moses, B. E. Wadsworth, A. J. Brooks, L. Kahn, A. L. Freed, W. Dietz, J. J. Hogan, F. F. A. Treuleben, J. Alexander, J. L. Nowey, A. W. Forth, E. B. Fox and S. D. Griffen, of New York; E. Klein, C.A.Culbertson and A.M.Jordan, of Cincinnati, Ohio; William Zeitler, of Albany, John A. Becker, Delmar, N. Y.; G. W. Payne and M. E. Kenney, Utica, N. Y.; H. C. Watts, Syracuse, N. Y.; C. H. Collman and J. V. Yelgerhouse, Erie, Pa.; George R. Bausch, Rochester, N. Y.; H. H. Plumb and C. F. Doring, Troy, N. Y.; W. M. Stieren, Pittsburg, Pa.; F. E. Smuer, Martinsburg, W. Va., and Charles May, Yonkers, N. Y.; W. J. Morse, Rochester, N. Y.

Interesting features of the April meeting of the society were, a lecture on "Physical Optics," by Prof. Day, of Columbia University, and the reading of a pamphlet by E. C. Bull on "The Greater Advancement of Improvements in the Manufacture of American Eye-Glasses Over Those of England and France." Mr. Bull is a brother of Dr. Bull, the eminent oculist of Paris, and has gathered a valuable collection of eye-glass guards.

## New England Association of Opticians.

On account of Tuesday, April 19th, being a legal holiday, the monthly meeting was held one week later, April 26th, at Young's Hotel, Boston. As several important matters were to come up, the attendance was large. Three applications were received for membership, and two new members elected—William L. Thomas, of Boston, and George H. Brown, of Manchester, N. H.

The various standing committees reported progress; the Tolles Monument Committee reporting that the monument had been erected and the grounds properly put in order ready for dedication. The Association extended a vote of thanks to them for their patient and efficient work, and the commmittee was discharged.

Article III., Sec. 1, of the By-Laws, was amended so that each applicant for membership "shall be obliged to pass a satisfactory examination in writing before an examining board, this board to be appointed annually by the executive committee." The committee then named as their appointees, Briggs S. Palmer, F. H. Blackinton and W. R. Donovan.

The matter of establishment of a school of optics under the management of the Association, was considered at length. It will probably include a thorough two years' course, and certificate; but the committee were allowed further time to perfect their plans, and report at a future meeting.

The next meeting, May 17th, being the annual meeting, the nominations of candidates for the several offices were received.

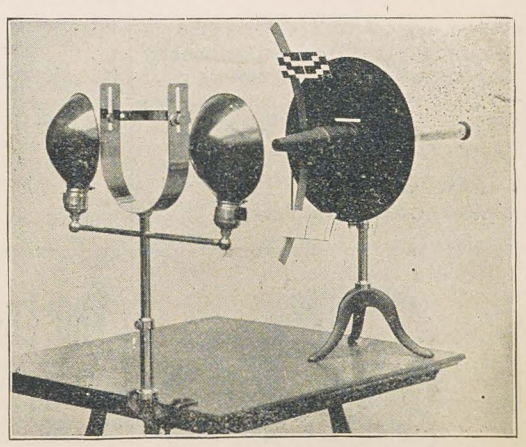
The 17th of May will be a red-letter day in the history of the Association. It will probably be occupied in the afternoon with the dedication of the Tolles Monument, at Mount Auburn Cemetery, with appropriate orations and speeches—the annual meeting following at Young's Hotel, this to be followed by the annual banquet in the evening. The entire body of opticians in New England will be invited.

The Pennsylvania Optical Society recently sent circulars to opticians in the State advising them of the possibility of legislation adverse to their interests, and urging them to become members of the society.

An idea of the present enormous dimensions of the optical manufacturing industry may be gained from the following figures. The American Optical Co., of Southbridge, Mass., sold in the year 1897, 2,281,908 pairs of spectacles and eye glasses, or 7606 pairs per day, or 634 dozen per day, or 13 pairs per minute; 2,660,676 pairs of spectacle and eye-glass lenses, or 8869 pairs per day, or 736 dozen per day, or 15 pairs per minute. The amount of gold and silver used was $564,000; amount of pay roll, $425,000; amount of lens stock for spectacles and eye-glasses used, 90 tons; number of hands employed at the present time, over 1000.

## An Improved Ophthalmometer.

The accompanying cut illustrates Satterlee's model of the Javal ophthalmometer. The maker claims that this instrument does away with many of the objections of the original Javal, being more portable, less refracting surfaces, and better view of the mires. The original Javal has the head-rest and a board for the instrument to slide back and



forth on. This model does away with this by having a head-rest which will clamp upon any table. On this instrument both mires move at the same time, and are always equally distant from the center, and less illumination is necessary than for the original Javal. It is also much lower in cost. This new instrument is made by the Buffalo Ophthalmometer Co., Buffalo, N. Y.

# A New Book "Optical Truths"

*Illustrated with Numerous Cuts and Colored Plates.*

CONTENTS

PART I.

*CHAPTER I.—The Laws of Refraction Stripped of Complications.*
*CHAPTER II.—Measurement of Lenses and Prescription-Writing.*
*CHAPTER III.—Refraction of the Dioptric System of the Eye.*
*CHAPTER IV.—The "Fogging" Method of Measuring Errors of Refraction.*
*CHAPTER V.—Machine Tests. Objective and Subjective Methods Compared.*
*CHAPTER VI.—The Clinical Value of Perfectly Fitted Frames and Lenses.*
*GLOSSARY—Comprising a List of Optical Terms, with Their Meaning.*

PART II.

*CHAPTER I.—Exposing Ophthalmological Charlatans and Their Practices.*
*CHAPTER II.—Operations, Medicines and Prisms, Three Great Ophthalmological Blunders.*
*CHAPTER III.—Affections of the Eyes Commonly Called Diseases.*
*CHAPTER IV.—Anatomy and Physiology of the Eye and its Appendages.*
*CHAPTER V.—Color-Blindness and a Comparison of Tests Therefor.*
*CHAPTER VI.—Mydriatics and Myotics—Drugs which Act on the Accommodation.*
*APPENDIX—A Quiz Compend, embracing the Principal Points of Practice.*

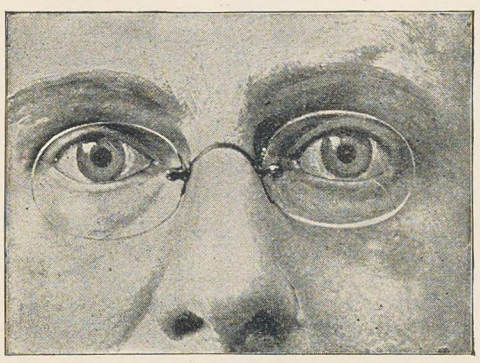
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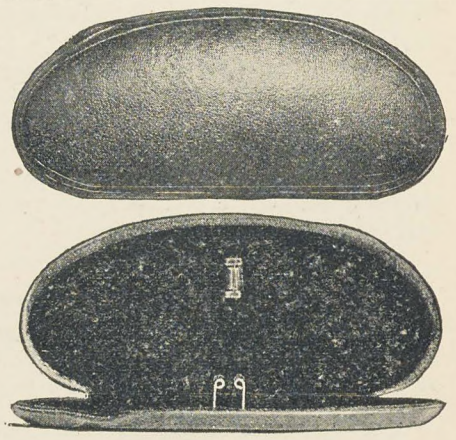
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Besides this, we give an optional course in Physiology, Physics and Chemistry without extra charge, preparing students for medical colleges.

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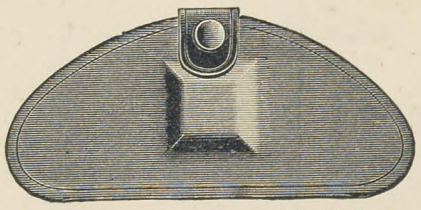
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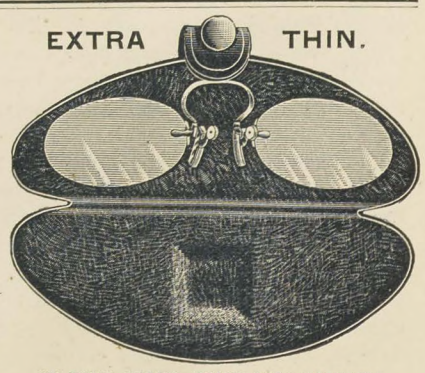
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# Lens-Grinding for Prescription Work.

XXVIII.

### The Perfect Machine for Producing Cylindrical Laps.

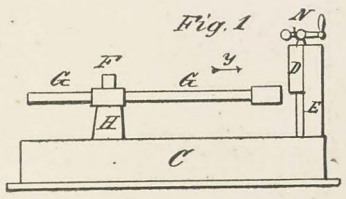
WHILE we in no way intend to shirk the entire details of a machine for producing laps for grinding cylindrical lenses, still we think the greatest importance lies in dealing thoroughly with underlying principles. Through this entire series of articles we have sought to deal summarily with lens-grinding, and then take up in detail such portions of the theories involved and mechanical processes employed as would enable our readers to best master the business in a commercial sense. In dealing with cylindrical lenses and the laps employed to produce them, we must first thoroughly impress on our minds what a cylinder is. Webster defines a cylinder as "a solid body supposed to be generated by the rotation of a parallelogram around one of its sides. "From the fact that there are both solid and hollow cylinders, we would suggest this definition of a cylinder: "A circle, with surface extension in the direction of its axis."

In a former article we gave a description of the method of constructing the swinging arm and stud which supported the device for carrying the planing tool for shaping the laps for grinding cylindrical lenses. If the reader will turn to page 51, January, 1898, KEYSTONE, he will see illustrated the parts we have to deal with. Now we are to consider the belongings of the stud *E*, with the slide *D*.

**How to Secure Perfect Accuracy in Cylindrical Laps**

We wish to preface any further remarks by saying that the acting upper surface of the bed *C* is planed dead flat, and that the stud or turret-head *E* stands exactly at right angles to the plane surface of the bed *C*. It is to be further understood that all motions of the slide *D* are on lines and planes also at right angles to the upper surface of the bed. To aid in our explanation, we repeat, at Fig. 1, the essential points of the cut referred to. We must bear in mind that in constructing the stud *E* we must make all vertical parts of the stud *E* with surfaces at right angles to the upper surface of the bed *C*. In constructing all machines of a type similar to the one we have in hand, it is well to make them extremely heavy; or, as some workmen say, sin on the side of strength.

*Fig. 1*




The laps we spoke of on page 310, April, 1898, KEYSTONE, were 5″ by 8″, but we will describe a lap-holder which will carry a lap 6″ by 9″. Fig. 2 is a side view of the stud *E*, seen in the direction of the arrow *y*, with an end or sectional view at Fig. 3. The width of this stud on the face is 8″, and its height 18″. The projection *E′*, on which the slide *D* works, is 6″ wide and 1″ deep. The position of the slide *D* is indicated by dotted outline in Fig. 3. This slide is fitted and provided with a gib, as is usual with such parts.

*Fig. 2*

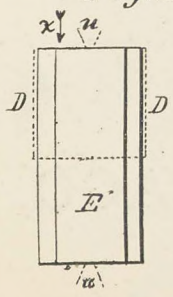
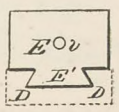



*Fig. 3*

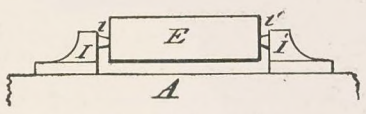



The proper way to fit up such a stud is to plane the sides in the metal-planer we employed for fitting up the laps. With such metal-planers there are usually cone centers, similar to those employed with the ordinary engine lathe. To make use of these centers we drill and countersink the same as if we were preparing for a lathe; as, for instance, in the end of the piece *E*, Fig. 3, we drill and countersink at *v* for a cone center, and at the opposite end of *E* provide a similar countersink. The positions of the cone centers are shown at *u u′*, Fig. 2. Such centers, in connection with a planer, can be used for many purposes.

**New Ideas Applied to the Metal-Planer**

Modern practice has made many changes in the mode of using a metal-planer, among which we can name the substitution of milling tools for those which cut a direct chip, as with a lathe. The method of using a metal-planer for our purposes is illustrated at Fig. 4. Two strong heads are provided, as shown at *I I′*, each head carrying a cone center, shown at *t t′*. These heads move to and fro, in the slot in the planer-bed, as described in our April, 1898, article, on page 310. Any person conversant with a metal-planer will see, on inspecting Fig. 4, that a piece planed between the centers *t t′* can be planed flat on one side if prevented from turning. The height of the centers *t t′* above the bed should be enough to allow any piece like *E* to be revolved on the centers *t t′* except when desired that said piece should be held in any one position until a given surface was planed to proper form.

*Fig. 4*




It is necessary that one of the centers *t t′* should be adjustable, to enable us to do perfect work; but after such adjustment is made any number of pieces can be planed to perfect accuracy. In such case the adjustable head would not not be moved; the free head, which could not be set wrong, would be shifted. The adjustment of the movable center should be to bring the axes of the two centers so as to lie parallel with the upper surface of the plane-bed, and also lie in the line of motion of said planer-bed. If the stud *E*, Fig. 1, is planed under these conditions, it will be impossible to ever place it out of adjustment on the bed *C*. Of course, it is to be understood that the end of the stud *E*, Fig. 2, which rests on the bed C, Fig. 1, is faced off flat on an engine lathe employing the same centers (*v*, Fig. 3) as were employed for planing the flat surface on *E*.

### How to Put On Glasses.

NEWTON, ILL., April 10, 1898.

ED. KEYSTONE.—When I want to know anything in the watch or optical line, I always peruse the pages of THE KEYSTONE, where I can usually find almost anything I want in either line, In the March number, on page 213, I find an article entitled "How to Put On Glasses." I have had over thirty years' experience at fitting glasses, and would like to suggest what I think a much better way, especially with any person having long or much hair, and more especially in the case of riding-bow temples. Grip the temples at the tip or outer end with each hand, raise the hands up above the nose, placing the bridge of the spectacles on the nose and moving the hands back and down, which brings the temples down on and behind the ears without catching in the hair. Let any lady try the above plan, and she will find no trouble in putting on her glasses after a trial or two.

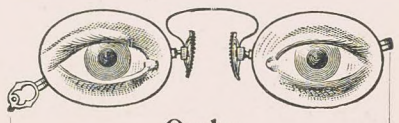
Yours respectfully, S. JOHNSON.


## Sample Optical Advertisements.



### *Eye Strain Illness*

Only those who have been relieved by the use of glasses understand what bearing the condition of the eyes has on the general health. There are children to-day sick because of eye strain. Their illness may be attributed to other causes, and they will go on being sick until the TRUE CAUSE be discovered by the exercise of good common sense on the part of the parents. If your child complains of the eyes, see what the trouble is—I can tell you—it won't cost you anything, so there's no excuse for negligence.



### Only Perfect Glasses

Every pair of lenses, every frame, every eye-glass chain and hook undergoes a careful inspection before leaving my hands. Each lens is accurately measured; if out of focus one one-hundredth of an inch it is thrown out. If there is the slightest bubble or blemish of any kind it's never sold; all of my chains and hooks are of good material and guaranteed to wear; all my spectacle frames undergo a rigid scrutiny, and any flaw in strength or finish consigns them to the refiners; the frame must also fit the customer's face in every way; the eyes must look through centers of lenses; bridge must not be too high or too low; must not cut temples; and lashes must not brush glass. I positively will not sell a frame that does not fit perfectly; would rather lose a sale ten times over than let such a frame go from my parlors.



### Two Ways Of Getting Glasses

One to go to a first-class optician, have your eyes properly tested, and get what you need—the other, to go to a merchant who keeps spectacles, make a "grab in the bag," as it were, get a pair that don't fit you (although it may seem so for the moment), run the risk of ruining your eyesight entirely—and all for a very small difference in expense.

If you need the services of a good optician we can serve you —well and cheaply.

[We can accommodate the trade with a large number of cuts, a few of which are shown above, all suitable for advertising. A sheet showing illustrations and prices will be sent on request.—ED KEYSTONE.]

396 *d*

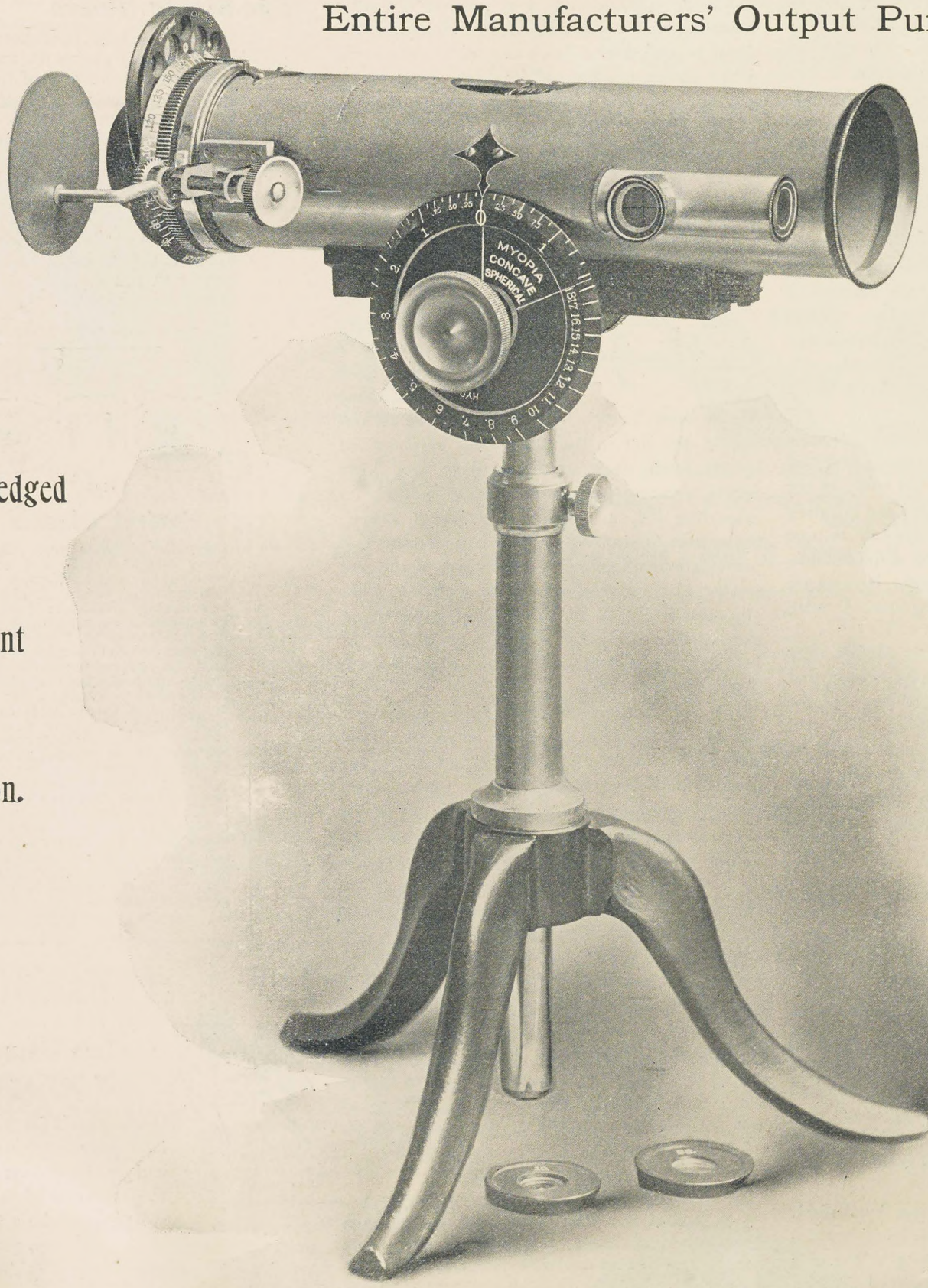
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## Examining School Children's Eyes.

Frequently in these columns we have commended the agitation of the matter of greater attention to the eyes of school children, believing that our commendation was justified as well by humanitarian considerations as by the pecuniary benefit that would accrue to the opticians. The most effective way to inaugurate such an agitation is to impress on the school officials and the public, through the medium of the press, the great importance of the subject. In our last issue we referred briefly to such a communication to his local paper by Optician Frank Edson Adams, of Worcester, Mass., and the result as revealed in the following letter shows the widespread interest in the subject:

ED. KEYSTONE. WORCESTER, MASS., April 12, 1898.

The result of your very kind mention in the April issue of THE KEYSTONE, of my communication to the Worcester *Telegram*, under the heading of "Care of Children's Eyes" in the schools, shows conclusively that THE KEYSTONE is read with interest all over the land. Hardly three days had elapsed before there were many calls for a copy of the communication. Already I have sent out to opticians and others, at their request, over 100 copies. The stock of papers at the office is now exhausted, and I have on my desk requests for more, which will swell the number well toward 150, and it is now but the twelfth of the month. It will be impossible for me to furnish more copies at present. Would it not be well for THE KEYSTONE to reprint the communication, that all may see it if they so desire? I will then refer those I have on hand, and any that may come, to your valuable journal. Very truly yours,

FRANK EDSON ADAMS.

Such widespread interest as this letter reveals justifies our publication of the communication, which was as follows:

**Care of Children's Eyes—They Should be Saved Instead of Ruined in School.**

To the Editor of *The Telegram*:

I believe you, as well as all citizens of our educated and enlightened community, have the welfare of our little ones at heart, especially the children in our public schools.

In their interests I address you upon a subject of recognized vital importance to them, and ought to be of interest to every parent, namely, the preserving of sight among the rising generation. Much of the happiness and prosperity in after life is due directly or indirectly to the eyes, consequently they should not be neglected. We cannot enter into details, as it is a field too broad to cover in the space you would be willing to give to the subject. Yet I desire to state a few facts, and call attention to this imperative duty we owe to our children.

First, it is an established fact that very few children are born with perfect eyes. Over eighty-seven per cent. are ushered into this bright world with a short eye-ball, and hardly five per cent. are found to possess normal vision. We will mention only one form of ametropia in this article, although there are many other troubles which are due to the eyes and of which we may write at some future day.

**The Near-Sighted Eye**

We will call the attention to the near-sighted eye (elongated eye-ball). If the figures above stated are true, where do all the near-sighted people come from? Among the medical profession myopia is a disease to a certain extent acquired or developed. W. F. Norris, A. M., M. D., has well said, "The myopic eye is a sick eye." If so, then comes the question, how shall we prevent the increase, or rather the development, of such a disease?

Good, vigorous health of body and tissues of the eyes will enable them to resist any reasonable strain, yet we are not all blessed with cast-iron health and strength. Putting the eyes at work under the most favorable circumstances, diminish the amount of work, and stop, if necessary, may be good advice, yet we are not all willing to conform to these rules in our "mad rush" to obtain a thorough education.

How shall we get to work? What methods shall we employ to bring about a reformation? It is, indeed, a complicated problem to solve satisfactorily to all parties.

The parent will tell us the child's eyes are all right. The child claims to see as well as any one. Why? In the first case, the parent has heard no complaint; in the second case, the child has never seen differently, and supposes all people see as he does, when many eyes would test hardly one-half normal vision, or the child may be using but one eye. Again, parents, being informed, remain indifferent.

**Blindness can be Prevented**

In the Cleveland *Journal of Medicine*, under the date of December, 1897, condensed and reprinted in the *Ophthalmic Record* of Chicago, January, 1898, appears an extract from the sixty-first annual report of the Ohio State Institution for the Education of the Blind, in which there are 301 pupils. Dr. J. E. Brown, the oculist employed to treat the eyes of such of the pupils as can be helped in this way, reports that thirty-five per cent. of the cases of blindness are the result of preventable disease. He further says: "It is clearly within the power of science to greatly reduce the number of blind."

This is but one of the reports that can be mentioned, and it surely seems sad that over 100 of this number could have been saved from the greatest curse that could have fallen upon any of us. Yet we have poor eyes everywhere, on the street, at school, and in our homes, and nothing is done until an ache or pain brings us to our senses. Every child, every person living, will claim his vision to be normal, until taught what normal vision is like.

Again, how shall we meet this question? To me there seems but one way to settle it, and the children will receive the benefit justly due them, namely, if our honorable school board could establish regulations like those enforced in regard to vaccination, that a certificate be required from some competent refractionist, showing that th· applicant's eyes were to a certain degree normal, or had been properly corrected. The question would be settled on the side of justice and right.

**Consider the Children**

I fully realize that such measures would meet with much opposition, and possibly defeat the end in view, yet I feel there must be something said or done in behalf of the children in this matter of sight, for it is a fact that children have been unable to keep up and graduate with their class, for no other reason than faulty vision, and from the simple fact of not knowing—never having been taught—what normal vision is like, supposes he sees as well as any one, passes through school far below the average in scholarship. I believe every scholar should have an equal chance to obtain an education if he desires it.

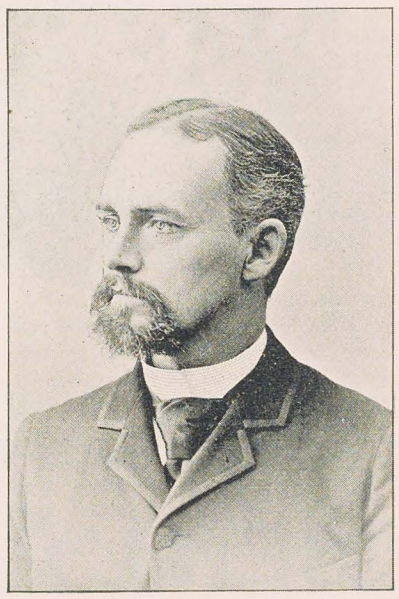
After considerable study as to the best methods of obtaining such tests, I am led to suggest that each teacher should be instructed to make an approximate test of the vision of the children in their school rooms, a record to be kept as the superintendent of schools or school board may deem proper. It would be but a short exercise to examine 50 or 60 or even 100 in the school room to which they are promoted. Thus we would have a record of each scholar as he enters each grade, from the time they enter our schools to the graduation.

The parents receiving the reports could see if the eyes were changing, and thus would be aware of any trouble before it would be too late. The charts necessary for such examinations would cost but a few cents each, and instructions could be obtained of any competent refractionist.

This is a question which will soon be presented to all the schools in our country, and why cannot we here in the heart of the commonwealth of good old Massachusetts, the cradle of liberty and education, be among the leaders in this great work of relief?

### Death of Benajah Urban Bugbee.

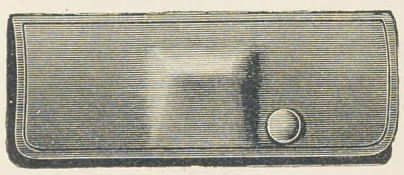
One of the most prominent men in the optical manufacturing industry has passed away in the person of Benajah Urban Bugbee, who died on April 20th. The deceased was president and treasurer of the Southbridge, Mass., Optical Company, the second largest corporation in that State engaged in the manufacturing of spectacles and eye-glasses. He was a self-made man.



Born in Thompson, Conn., August 13, 1845, he went to Southbridge at the age of seventeen. After learning telegraphy he went to the Charlestown office of the American Telegraph Company, and later to the main office in Boston, where he was associated with Thomas A. Edison. He returned to Southbridge in 1869, and entered the clothing and dry goods business, and his establishment soon became one of the largest stores in town. While in this store he was postmaster at Globe Village, a suburb of Southbridge.

Early in the eighty's he became financially interested in the Southbridge Optical Company, and in 1885 was elected treasurer, and in 1892 was elected president and treasurer, retiring from the dry goods business in 1893. The success of the optical company was largely due to his business management.

He was always a staunch Republican, being elected a member of the Legislature in 1883. He was an accomplished business man of sterling integrity and amiable personality. His enterprise was always guided by good judgment, intelligence and foresight, which explains the success of all his undertakings. He made a vast number of friends among the optical trade, all of whom will hear with regret of his death at a comparatively early age.

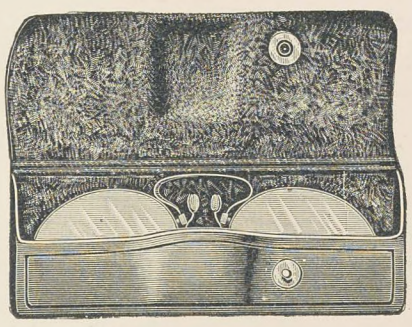
The New Koenen Case for OFFSET Eye-Glasses.

Made of the same material, STEEL and ALUMINUM, as the Shell Case, which has gained such favor among the opticians and their patrons. It is COMPACT, HANDY and DURABLE, offering a perfect protection to the eye-glass.

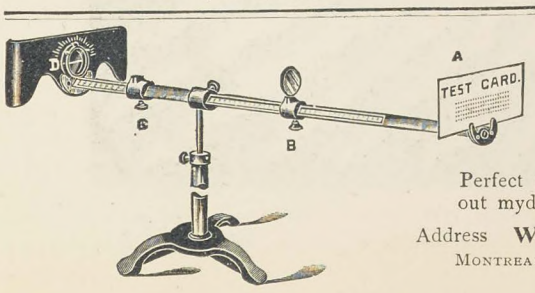
Manufactured by

A. KOENEN & BRO.,
81 NASSAU STREET, NEW YORK

Sold by Jobbing Trade.



Patent applied for.




Send for Circular

that explains the latest improvements on

Fay's Optometer.

Perfect test for Latent Hyperopia without mydriatic. Special Offer now.

Address W. G. FAY, Springfield, Ohio.

MONTREAL OPTICAL CO., Agents for Canada.

"One actual experience is worth a thousand theories."

99 Optical Ads $1.00

Printed copy—appropriate headlines—each containing 60 to 100 words.

Plain original talks in type—talks that sell. Ads that have built my business—are increasing it. You never saw one of them—money back if you did. I know how to make type and printer's ink bring people into the office or store. Let me bring them to you—"you do the rest."

WM. E. HUSTON, OPTICIAN,
GREENFIELD, IND.

To Cement Bifocals




Apply LIQUID AMBER to each lens, allow the solvent to evaporate, put together and heat to the melting point in the usual way.

Far stronger and cleaner than Canada balsam.

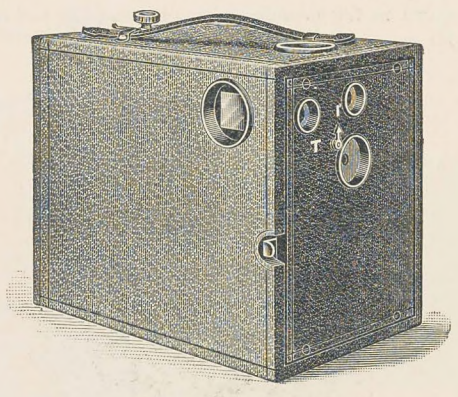
*When writing to advertisers, kindly mention The Keystone.*

# CAMERAS

## A Good-Selling Side Line for Jewelers AND Opticians.

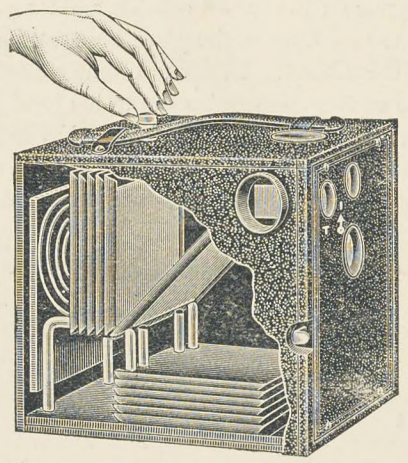
Our exclusive catalogue of **CAMERAS and PHOTOGRAPHIC SUPPLIES** is now ready. Will be sent to the **TRADE** upon application.

### THE CYCLONE MAGAZINE CAMERAS



### TO TAKE PICTURES

| | |
|---|---|
| 2½ x 2½ inches, . . | **$3.50** |
| 3¼ x 4¼ " . . . | **6.00** |
| 4 x 5 " . . | **10.00** |



LIBERAL DISCOUNTS TO DEALERS.

The Amateur Photographer has been looking for a small camera that would carry in a small compass the necessary number of plates for an outing. We were quick to recognize that fact, and as a result have produced the "Magazine Cyclone" to meet this demand. This camera holds twelve plates at one loading, does not require any extra plate-holders, but is complete in itself. It is so simple of construction that it is practically impossible to make the errors so common to the beginner.

For prices, discounts, etc., write for our Camera Catalogue.

## BENJ. ALLEN & CO. Wholesale Jewelers and Opticians

PUBLISHERS OF THE
*B. A. & Co. Jewelry Catalogue*

THE SILVERSMITHS' BUILDING
131 to 137 Wabash Ave., CHICAGO

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## Double Your Optical Business

by using our **Optical Advertising Booklets.** Only *your* name and advertisement printed on them.

**The Cheapest, Handsomest and Best Optical Advertising Booklets ever compiled. Send for samples and prices.**

C. H. HINGES, Salem, Oregon, says: "You have compiled a lot of information in the booklet, which is well selected and just what I want. I am sure I will want another lot."

W. J. SPROUL, Sparta, Ill., says: "Booklets received, and I am highly pleased with them. No optician can afford to do without them. It's buying 100-cent dollars at a heavy discount."

THE KEYSTONE,
19th & Brown Sts., PHILADELPHIA, PA.

## Chicago News.

(*Continued from page 380d.*)

were Lloyd Milnor, E. J. Smith, L. J. Norton, representing the firm; and Jesse Holden, G. S. McReynolds, C. L. Raymond, Geo. H. Webster, and A. F. Seeberger, vestrymen of Trinity Church, of which he was a member. The remains were interred in Graceland Cemetery. The many members of the jewelry trade present included C. D. Peacock, H. S. Hyman, C. B. Shourds, Col. Keller, James L. Rowe, Mr. Farwell, Ed. Hyman, Peter Lapp, Sol. Kaiser, W. T. Meech, Paul Juergens, M. N. Burchard, Benjamin Allen, Max Ellbogen, S. C. Payson, Julius Schnering, W. H. Vogell, L. W. Flershem, Grove Sackett, J. F. Talbot, George Gubbins, George Adams, J. H. Purdy, and Loren Boyle. There were seventy-five of the employees of Spaulding & Co. who attended in a body.

Mr. Forman had been identified with the jewelry trade in Chicago since 1863, and was among the best-known men in the Western trade. He was born in Nichols, Tioga County, N. Y., fifty-eight years ago. He received a college education, and supplemented his schooling, as have so many successful men, by devoting some time to teaching in a district school. In 1863 he came to Chicago, and the same year became connected with the firm of N. Matson & Co., a leading retail house of that period, and remained in a confidential position with that firm until 1882. When Mr. Matson died in, 1887, Mr. Forman was made receiver, under appointment of Judge Gresham, of the United States Court, to settle the business, and, upon his success in that exacting and difficult task, he was congratulated by the entire business public, and the creditors of N. Matson & Co. joined in signing and presenting him with a testimonial to tact, efficiency and unquestionable integrity with which he had carried the matter to a gratifying termination.

Upon the organization of the house of Spaulding & Co., in 1888, Mr. Forman became director and secretary of that corporation, a position he held until his death. Mr. Forman was prominent in everything tending to the enhancement of the interests of the general public or any considerable class of his fellow citizens. When the Iroquois Club was being formed he was actively identified with its organization, and was elected one of the first vice-presidents of the club, representing the south division and held that office 1882–1884. He was treasurer in 1885, corresponding secretary in 1886, and vice-president again in 1887. He was a member of several other popular organizations, including the Church Club, of Chicago, which has a membership representing in many respects a higher order of Christian manhood than any other club in the country, and of which he was a prominent promoter and a director, and in the management of which he was ever active and useful. Membership of the Protestant Episcopal Church is a requisite to membership of this club, and with Trinity Episcopal Church Mr. Forman was identified for many years, and during the past ten years was a vestryman. Always a staunch Democrat, he took great interest in national politics, and was an earnest worker in the ranks of the party, although never as an aspirant for official honors. His wife who survives him, was Caroline Clark, daughter of Henry B. Clark, who was a pioneer Chicagoan.

At a meeting of the Jewelry trade of Chicago, held at the rooms of the Chicago Jewelers' Association, Friday, April 15th, called to take suitable action upon the death of Mr. Forman, the chairman of the meeting, Mr. Paul Juergens, appointed as a committee to draft resolutions of condolence and appreciation, to be engrossed and presented to the family, the following gentlemen: H. S. Hyman, C. B. Shrouds, Col. Keeler, James A. Todd and S. C. Payson. Mr. Juergens also appointed as a committee to procure an offering of flowers, Messrs. Sol. Kaiser, L. W. Flershem and C. D. Peacock, Jr.

The employees of the house of Spaulding & Co., numbering eighty-seven, passed the following memorial upon the death of their late associate and friend, which they have had beautifully engrossed, richly bound and presented to Mrs. Forman. It bears the printed signature of each one of eighty-seven above mentioned. It is as follows:

The employees of Spaulding & Co. are desirous of expressing a few words which shall be not only a slight recognition, but also a permanent record of the high regard and esteem in which they held your loved husband, Mr. Edward Forman. His friends and associates in Spaulding & Co.'s, to whom he had so endeared himself by his ever courteous manner, his loyalty his uprightness of character, and the unswerving sense of justice which dominated his life and taught us to love and honor him, are most deeply grieved that, for some inscrutable reason, which we may not question, it should have pleased the Almighty to have summoned him from a sphere of usefulness. And we desire to offer you our heartfelt sympathy and condolence in your bereavement, and in asking your acceptance of this testimonial which but feebly convey the emotions which stir our hearts, we assure you that it is accompanied by our earnest prayer that God in His mercy will comfort you and may long preserve and abundantly bless you.

## Columbus, Ohio, and Vicinity.

People have been too much interested in the approaching war with Spain to give much attention to business of late, and as a result it has suffered to a considerable extent. While this is true, it is the general belief that matters will assume a different aspect in a short time, and even in the event of a continued war, there will be some improvement in trade conditions. There will be a demand for produce of all kinds and a greater amount of money will be put in circulation. In the event of an early settlement of the trouble, however, the prospects for business will be still better. Business men, as a rule, looked for a prosperous season, and no doubt their ideas were correct, but circumstances have so changed that at the present a conclusion can be reached only by an analysis of prevailing conditions. The jewelry houses of the city are doing some business, while the proprietors, in common with others, are interested more in the probable outcome of the impending conflict.

Assignee Earl P. Sivercoal has closed out the stock in this city, owned by J. C. Johnson, at auction. Mr. Johnson endeavored to make arrangements to raise the assignment, but did not succeed in doing so. After waiting a reasonable length of time he took steps to close out the business. Mr. Johnson conducted the store only a short time after purchasing it from P. A. Koch, when creditors for about $700 forced him to assign, as just at that time he could not meet their demands.

A very mysterious explosion occurred in the store of W. H. Harter, Steubenville, Tuesday morning, April 19th. The rear wall of the room was blown out and the building then took fire. The goods and fixtures were badly damaged. John Harter, an employee, was sleeping in the store. He was thrown from his cot against a large stove and was badly injured. It is a very mysterious affair, and at this time the cause has not been ascertained, though an investigation is being made.

C. D. Brook, of Coshocton, has completed a course in retinoscopy at Pierce's school, at Pittsburg.

A. E. Sprague, of Columbus, will open a jewelry and optical store at North Mansfield, at an early date.

The Hoffman Supply Co., of Columbus, has made arrangements to fit up a suite of optical parlors in connection with the jewelry business. C. A. Graves is at the head of the department.

William B. Tucker has opened a repair shop on High Street, near Fifth Avenue, Columbus.

N. L. Marsh, of Ballaire, has opened a jewelry store at Mannington.

Emery Edson has made arrangements to continue the business of J. D. Rowland, his former employer, at Van Wert.

The jewelry store of C. N. Peddinghaus, at Marietta, was badly damaged by the recent flood in the Ohio River, water standing in the room to the depth of seven feet.

William Zang, of Alliance, has taken a position with G. Spies, of Irwin, Pa.

A. C. Jacobs has opened a handsome jewelry store at Wapakoneta.

Painesville has a new firm—Wood & Kee. They purchased the stock of the late J. A. Babcock.

D. B. Anderson has purchased H. H. Webb's jewelry store at Marietta.

Thieves stole about $100 worth of jewelry from the store of Jones & Jones, at Venedocia, March 31st.

E. Luchtenberg, of Columbus, has been quite ill for several days.

F. B. Kehrer, of Bucyrus, has just returned from a trip to Arkansas.

E. M. Blauvelt has moved his store to one of the rooms in the new depot, on the High Street viaduct.

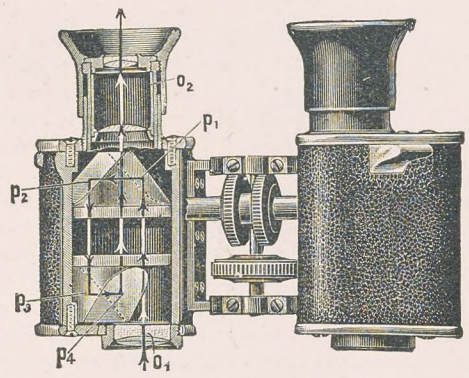
The new firm of Bancroft Bros. is now fully equipped with a nice stock, and is doing a good business.

D. L. Auld, the manufacturing jeweler, will, in a short time, start his traveling men out among the college fraternities.

Wholesale jewelers say the miserable condition of the country roads has damaged business in the smaller towns.

### The Frieder-Binocular.

We here show an illustration of one of the celebrated Frieder-Binoculars, manufactured by G. P. Goerz, whose factory is in Berlin-Friedenau, Germany, and New York office at 52 Union Square, East. The Frieder-Binocular is an improvement on the opera and field glasses heretofore in use, and is specially effective for occasions when great brightness of image and an extensive field of view are required. It is consequently very desirable for use in the army and navy, for hunters, tourists, theatre-goers and people who attend race courses or regattas. It embodies a most ingenious manipulation of the principle of the




terrestrial or astronomical telescope for convenient everyday use, thus securing the magnifying power of a long telescope in this short instrument. This shortening is due to the use of prisms. In our illustration, *O* is the object lens through which the rays of light enter the telescope. The reinversion of the image is accomplished by the fourfold reflection from the prisms *p1*, *p2*, *p3* and *p4*. We have thus all the advantages of the telescope in a short, handy pocket-instrument. Lack of space forbids a more minute description of the ingenious mechanism of this glass which, in its entirety, is very effective for theatre and out-door use.

*"Enclosed find one dollar for The Keystone. I am well pleased with the space and kind of articles you are devoting to the optical branch of our business; they are very instructive."—W. Upington, optician, Norwalk, Ohio.*

## *Growing Popularity of Gold Filled Spectacles and Eye-Glasses.*

*A striking feature of the optical goods market, in its latest development, is the increasing demand for gold filled spectacles and eye-glasses. These handsome goods have recently been making rapid strides in popular favor, and the trade are unanimous as to the satisfaction and profit of handling them. Gold is, of course, the elect of metals for any article worn on the person. But the price of the solid article has been a barrier to popular possession. The gold filled article, on the other hand, can be sold at a price which places it within reach of the majority of purchasers, while it is practically solid gold as far as appearance, beauty and wear are concerned. The seller of gold filled spectacles, therefore, can push sales with all the arguments that apply to solid gold goods, and the moderate price, in nine cases out of ten, clinches the deal.*

*Care should be taken to explain to the public that the gold filled goods are neither electroplated nor "washed." They are made of an external plate of solid gold of varying thickness, with a composition metal in the center to take the place of the gold that would be hidden away. This hidden gold serves no special purpose of ornament or wear, while adding greatly to the cost. The composition metal that takes its place makes the frames stronger, while not detracting from their solid gold appearance or capability to wear. In fact, these goods when made with all exposed parts covered with rolled gold, quality and thickness of gold taken into consideration, there should be no risk run by the dealer in handling them, particularly as some manufacturers attach a guarantee to each pair.* *

## Pittsburg and Vicinity.

The condition of business in this section of the country is practically at a stand-still, owing to the impending war crisis. While the trades, excepting iron and steel, are all more or less affected by the present situation, the jewelry and kindred trades are compelled to assume a lugubrious aspect not anticipated before the Christmas holidays. Had it not been for the lull occasioned by the war-like attitude of the country, this locality would have had a rousing good spring trade. The advent of Easter did not affect a material change in the condition of affairs, though all the local dealers united in attractive window displays which established themselves as rivals of the war bulletins.

Notwithstanding the suspension of active business there is plenty of money in Pittsburg, judging from the remarkable figures presented in the reports of the Pittsburg national banks. In two months' time the deposits increased $6,903,017, and the reserve increased $3,301,822. This certainly emphasizes Pittsburg's importance as a commercial and monetary center, and serves as a fitting illustration that there has been a pronounced return of general confidence.

Jewelers are inclined to adhere strictly to their own line, and as a consequence, very few are handling bicycles owing to their cheapness. Music-boxes, as high-grade sellers, are preferred.

Heeren Bros. & Co. introduced a very neat patriotic badge which sprung into popularity. It is a shield with "Liberty" upon it, and the American and Cuban flags draped at either side. The whole is surmounted by the American eagle.

A man, giving the name of H. E. Rothschild, of New York, was arrested on April 19th on suspicion of being a "pennyweighter," and his wife, suspected of being his accomplice, was also placed under arrest. They were located at one of the local fine hotels. They were in the city for a week, and Superintendent O'Mara saw Rothschild acting in what he considered a suspicious manner, entering jewelry stores examining goods and never purchasing. Rothschild wore an overcoat similar in cut to a shoplifter's skirt, having slits through which to work with the hands and a false lining. Many pawntickets were found in their possession, made out by New York pawnbrokers, in the names of Rothschild, Adair, Wilton, Reedy, Miller and Johnston. He was held for a hearing on the 20th at which local jewelers appeared and testified. He was held for a second hearing, pending New York information. The woman was discharged.

Geo. B. Barrett & Co. have been having an excellent spring trade, and, in the face of the approaching international conflict, have had considerable reason for congratulation on the amount of business done. James F. Brown, one of their travelers, has been successful in sending in orders. Mr. Brown had several exciting experiences in the flooded Ohio district.

Kornblum, the optician, removed to 440 Wood Street.

The wedding of Walter Williams, bookkeeper for E. P. Roberts & Sons, and Miss Sarah Whitaker Roberts was solemnized on Thursday, April 21st, at the residence of the bride's mother, Mrs. E. P. Roberts, Fifth Avenue, at eight o'clock. The marriage was a beautiful affair, about 200 guests being present. Rev. Daniel Dorchester officiated. THE KEYSTONE extends felicitations and best wishes for a long and happy wedded life.

A. E. Siedle, East End, is an extensive dealer in real estate. His latest venture was the sale of two lots on Howe Street for $4000 cash.

W. W. Wattles and Mrs. Wattles returned from a five weeks' visit to Southern resorts, much benefited thereby.

The Easter number of THE KEYSTONE was widely commented upon and justly praised. The beautiful cover design was everywhere accorded the distinction of being one of the most artistic of its kind ever seen among literary magazines and trade journals. Among the trade who personally remarked the beauty of the number, and the intense interest of its reading matter as well as the attractiveness were: Henry Barrett, G. B. Barrett & Co.; Charles O'Brien, W. J. Johnston & Co.; Manager Braddock, Rodney Pierce Optical Co.; Charles W. Wattles, Steele F. Roberts, and others eminent in the local trade.

James Best, formerly with Hardy & Hayes, started up in business on Sixth Street in the Bijou Block.

Rihildaffer & Brownfield bought the store of A. Howard Fleming, Fairmont, W. Va.

John R. Grieb, Butler, Pa., held an auction sale.

Gus. Spies, Irwin, Pa., held a fine sale. William Zang, of Alliance, Ohio, is now with Mr. Spies.

Among the out-of-town jewelers who were lately in Pittsburg were: F. H. Hayes, Washington, Pa.; R. L. Kirkpatrick, Butler, Pa.; H. H. Weylman, Kittaning, Pa.; W. S. Marsh, Mannington, W. Va.; H. C. Morrison, Mt. Pleasant, Pa.; John Linnenbrink, Rochester, Pa.; J. P. McDonald, Sewickley, Pa.; H. R. Brown, New Brighton, Pa.; C. Springer, New Castle, Pa.; Wm. Hunt, Uniontown, Pa.; Ed. Kennerdell, Tarentum, Pa.; E. H. Schaefer, Beaver Falls, Pa.; George H. Smith, Lancaster, Ohio; J. W. McKean, Charleroi, Pa.; A. Merz, Sewickley, Pa.; Walter Kennerdell, Verona, Pa.; S. H. Schmidt, Turtle Creek, Pa.; H. A. Reineman, McKeesport, Pa.; C. F. King, Coraopolis, Pa.; E. O. Bloser, New Kensington, Pa.; George Eckert, Jeannette, Pa.

## Providence and Attleboro.

Here, as elsewhere, the war scare has been a damper on business, but apart from this a between-seasons' quietness usually characterizes the month of April. This was taken advantage of by many manufacturers to renovate and reinforce machinery, and put their plants in order for the more active manufacturing season now at hand. There is quite a run on souvenirs and emblems of a military character, and novelties generally seem to be in demand in proportion to the military air that surrounds them. Designers have taken advantage of the popular *penchant*, and belts, buckles and lots of other goods are rigorously *a la militaire*. Factories engaged in the manufacture of these goods are quite busy.

The partnership existing between Theodore W. Foster and Samuel H. Bailey, under the firm name of Foster & Bailey, was dissolved on March 31st. Mr. Foster purchased Mr. Bailey's right, title and interest in the business, and is now sole owner. Mr. Bailey remains in Mr. Foster's employ, and is performing the same duties as heretofore. An extensive enlargement of the plant is contemplated, as the expansion in the business is crowding its present capacity.

Edward Huestis, father of Harvey Huestis, of Hutchison & Huestis, Providence, died recently.

A. Ernest Austin, of John Austin & Son, Providence, is having constructed a fast naphtha launch, which he will use as a pleasure craft.

Oscar T. Jonassohn, of Allen & Jonassohn, was recently elected to membership in the Providence Athletic Association. Howard D. Wilcox, of D. Wilcox & Co., and James Smith, of Smith Brothers, have been elected members of the committee on cycling of the same Association.

The Bowen-Macomber Company, of Providence, has been incorporated. The Company will engage in the manufacture of jewelry, tools for jewelers and light machinery. The incorporators are Seabury W. Bowen, W. I. Macomber and Frederick C. Rounds, and the capital stock is $50,000.

N. E. Holt and W. J. Pierce have formed a partnership under the title of A. Holt & Co., to manufacture rolled gold, plated and gold-filled wire and tubing at 167 Dorrance Street.

George Allen has begun business in Attleboro as a manufacturer of badges and novelties.

E. S. Horton has been elected chairman of the trustees of the public library of Attleboro.

William Bens, Providence, will move from 107 Friendship Street, into the shop recently vacated by the Bassett Jewelry Company in the Metcalf Building, at 144 Pine Street.

Frederick H. Capron, formerly foreman for Capron & Co., Providence, died last month. He was a brother of Herbert S. Capron, proprietor of the business, and belonged to the Odd Fellows and Red Men orders.

The students of the Rhode Island School of Design are now at work on the third annual prize design for the New England Manufacturing Jewelers' Association. A silver brush back is the subject selected by the Association.

L. D. Nelson, watchmaker, has moved from 43 Dorrance Street to 47 Eddy Street, Providence.

Saxon & Sheldon, electro-platers, have begun business in the Manufacturers' Building, Providence.

Benjamin P. King, with A. A. Bushee & Co., and Harry P. Kent, of F. W. Weaver & Co., were appointed committee on printing by the Attleboro school board.

At the Rhode Island State election last month, W. J. Lewis, Jr., was elected representative to the General Assembly from Barrington; Henry C. Luther was elected representative from Cranston, and John L. Remlinger was elected representative from Providence.

I. B. Ballou & Son have opened a retail store at 49 Eddy Street, Providence.

The Bassett Jewelry Co. and Martin, Copeland & Co., Providence, have moved into their new quarters in the Manufacturers' Building.

The following have been elected officers of the Odd Fellows Building Association of Attleboro: President, Sidney O. Bigney; first vice-president, Charles O. Sweet; second vice-president, David E. Makepeace; secretary, Walter J. Newman; treasurer, George H. Herrick. The board of directors include the above, William C. Tappan, Edward A. Sweeney, Max W. Potter and others.

The new factory of J. B. Mantien & Son, one of the firms recently burned out in North Attleboro, is being rapidly erected. It is in part the old Phillips Building, on Orme Street, which has been raised and another story built below. The building will be two and a half stories.

Abiel Codding, one of the earlier jewelers of the Attleboros, and father of Codding Brothers, was prostrated recently by a paralytic stroke but rallied bravely. He is over eighty years old.

S. O. Bigney, of S. O. Bigney & Co., Attleboro, at the invitation of the Board or General Appraisers of Congress, went to Washington last month to testify before the Board which had under discussion the question of the proper classification of certain jewelry. The Board could have chosen no better informant.

A force of men are now at work on the foundation of the building to be erected in North Attleboro by H. F. Barrows & Co.

*"The Keystone is worth ten times the price to any jeweler. Enclosed find one dollar."—E. W. Tilley, jeweler, Mt. Vernon, Wash.*

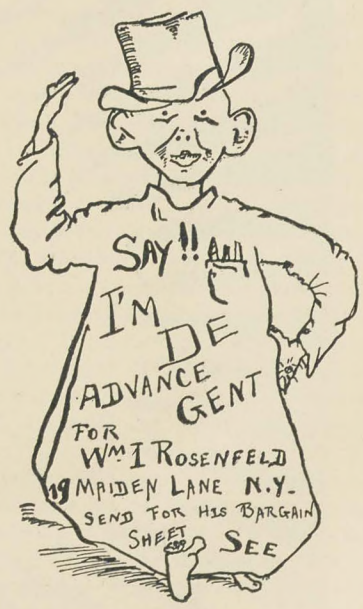
### How to Dun on a Postal.

Postal card duns are mailable provided a threat of placing the account in a collector's hands does not accompany it. For instance, the following is mailable:

Please call and settle account, which is long past due, and for which our collector has called several times, and oblige.

And the following is unmailable:

You owe us $1.50. We have called several times for same. If not paid at once we shall place with our law agency for collection. —Ex.



## *Unsolicited Endorsements*

are of greater value and of far more **INFLUENCE** than any other kind.

The mind comprehends that which is *meritorious* and recognizes that *quality* which commands attention and admiration.

**THE EFFORTS** made to advance the students that attend

# Hutchinson's School for Watchmakers, Engravers and Opticians

to that degree of thoroughness have been recognized by the trade throughout the United States, and our graduates continue to add REPUTATION to that high standard which this School has maintained for the past ten years.

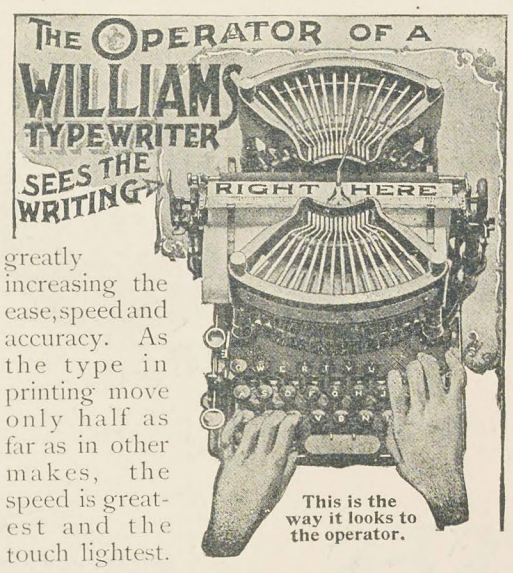
**Get our Catalogues.** **ATTEND OUR SCHOOL.**

*Address J. L. HUTCHINSON, Supt.*

## La Porte Watch School,

LA PORTE, IND.

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This is the way it looks to the operator.

greatly increasing the ease, speed and accuracy. As the type in printing move only half as far as in other makes, the speed is greatest and the touch lightest.

PRINTS LIKE A PRESS—
**no blur, no dirty ribbon.**

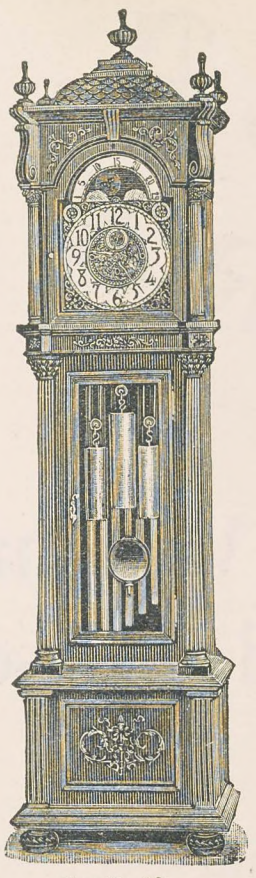
# Williams Typewriter Co.

*DERBY, CONN.*

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Boston, 147 Washington St.
San Francisco, 508 Clay St.
Atlanta, 16 North Pryor St.
St. Louis, 306 North Third St.
Philadelphia, 1019 Market St.
Milwaukee, 224 Grand Ave.
Minneapolis, 42 S. Fourth St.
Cleveland, 131-5 Euclid Ave.

New York, 273 Broadway.
Dallas, 283 Main St.
Denver, 321 Sixteenth St.
Richmond, 914 E. Main St.
Cincinnati, 409 Walnut St.
Washington, 913 G St., N. W.
Montreal, 200 Mountain St.
London, 104 Newgate St.

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Case No. 29.
Bar Chime.

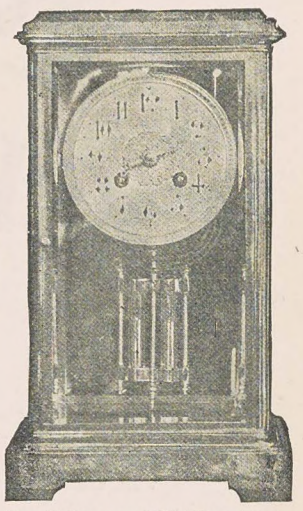
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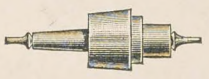
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★ **"STAR" Brand American Mainsprings,** extra quality, **crocus finished,** are now put up in enameled anti-rust tin boxes.
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**American Balance-Staffs and Cock and Foot Jewels,** in settings, for the following movements, at **75 cents per dozen.** If not satisfactory, money cheerfully refunded.



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| Waltham, 0, 1, 6, 16 and 18 sizes, | **75** | cents | dozen. |
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★ **"STAR" Brand American Roller-Jewels,** one gross (12 dozen), nicely assorted in walnut cabinet, 12 bottles, for the leading makes of American watches, perfect fit.
**Special price, complete, $2.25.**

**Swiss Hole-Jewels,** per gross, **$1.25, $1.75** and **$2.50.**

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**Swiss Roller-Jewels,** oval or round, per gross **25 cents.**

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**Special, $1.75 (dozen, 20 cents).**

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**Gold-Plated Hat-Pin Backs,** per dozen, **23 cents.**

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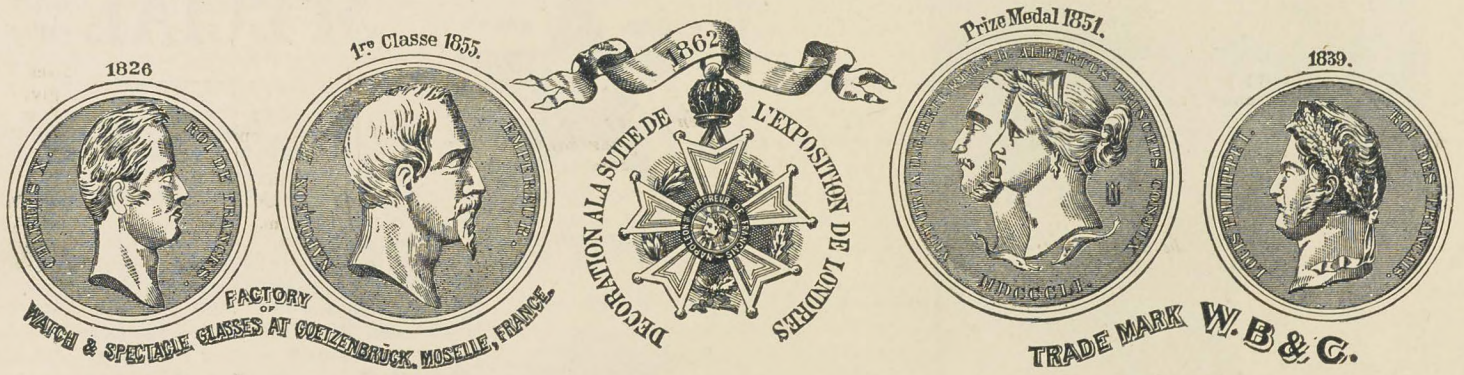
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**WATCHMAKERS!!** If you wish to save time and money and give good satisfaction to your customers (if you are not using them), try the **W B & C** and don't be deceived by bluffing and humbugging advertisements, showing a lot of nonsensical figures. The **W B & C** glasses are in existence over sixty years, and during that time a great many brands have sprung up in one day, and never heard from afterwards.

It is a good and reliable glass you want, which is the W B & C.

## Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

*Lever Escapement.—In making a Paragon lever escapement model, I would like to know the size of the pivots of the staff, etc. I do not see this in your description in The Keystone, page 952, October, 1893.*

In constructing such a model it is well to err on the strong side, and employ balance and escape-wheel pivots that are about $\frac{1}{16}''$ in diameter. They should not be less than $\frac{1}{20}''$. The balance runs on the end of the pivot, and will take an excellent motion with the eight-day clock movement with pivots $\frac{7}{16}''$ in diameter. The balance-staff is made from a spring-tempered steel wire which fits a No. 40 Whitcomb chuck. The balance is set on a collet made from $\frac{7}{16}''$ brass rod, which is driven on the staff. The roller, also of brass, is driven on the staff until it strikes the collet on which the balance is set. The hairspring is colleted with a piece cut from the $\frac{7}{16}''$ brass rod.

*"Klondike."—I have a fine Swiss regulator with pin escapement, which causes me trouble. I cleaned and changed the position of the fourth wheel, so it strikes the escape-wheel pinion in a different position, because the pinion was worn. The clock ran all right for two months, but stopped after a cold snap, when no fire was kept in the store at night. When running and the sweep-second hand was going, from 9 to 12 the tick could hardly be heard. In going from 12 to 9 the tick sounded loud and full. On removing the second hand the tick sounds even. I have added one pound to the weight, and it now runs all right. But I am in doubt if I should have added the extra weight.*

Probably the long end of the second hand is too heavy. Take the escape-wheel out of the clock and put the second hand on it, and see if the hand and escape-wheel will poise. First poise the escape-wheel, and then poise the hand. It is not usually good practice to increase the driving weight.

*"Celluloid Buttons."—Please explain the process of putting pictures on celluloid buttons.*

We do not think that the correct details of the process have ever been made public. We can mentally see several methods by which such results could be achieved, but could not give entire details except after making many experiments. Probably, the man or men who worked out the process is sharp enough to keep important parts of the process to himself until he makes all the money he can out of it. The lines to work on, for any person who wishes to work out the process for himself, is to first work out a plan by which he can rapidly produce positive photo. pictures on a collodion surface, said collodion surface being placed on thin sheet metal. We do not think any person not thoroughly conversant with three lines of manufacture stands much chance of success. The three lines we have in mind are (*a*) producing cheap buttons; (*b*) how to make and handle collodion colors and varnishes; (*c*) a thorough knowledge of photography.

*"Recovering Gold."—I have a lot of old watch plates (English levers,) also old rolled and fire-plate jewelry. Can I recover the gold to any profit, and if so, how?*

About the simplest and most satisfactory way is to procure some chemically pure nitric acid—a pound of acid for every pound of old scrap. Add a pound of water, and place the whole in a glass vessel and allow it to stand, giving it an occasional stirring with a strip of glass. Keep the vessel covered, and at the end of a week heat the vessel by placing it in a pot of cold sand, heating all together up to near the boiling point of water, to stimulate chemical action. It is well to place the vessel out of doors, to get rid of the red nitrous oxide fumes which are given off. It is also well to cut up the articles into as small bits as practicable, to facilitate the process. As soon as the acid ceases to act, pour it off into another glass vessel and pour on a little fresh acid diluted by an equal quantity of water, and warm up. Add the acid little by little, as long as it acts on the remnants of the plated stuff. As soon as all chemical action ceases, wash well with water, then place in a black-lead crucible with some carbonate of potash, and fuse. It will be a bad lot of old stuff if you do not get in gold ten times the cost of your acid. The gold so obtained will not be pure, but about sixteen-karat; but it will usually be good enough to use for jewelers' work.

*"Glazier's Diamond."—How can I reset a glazier's diamond?*

Setting glaziers' diamonds is a business by itself, and success depends much on eye and hand. Probably we can give you more correct ideas by a short explanation than by specific instructions. Cutting angles on glaziers' diamonds are natural ones, not those made by grinding. An angle formed by grinding only scratches (that is, it tears a rough channel through the surface of the glass), while a natural angle of the diamond starts an incipient fracture or split, which is almost invisible unless we get the proper light on it. A little experience will soon set one right and teach him to decide on the proper kind of angle to start such fracture. The cheaper grades of glaziers' diamonds seldom have more than one cutting angle which will make a good cut for glaziers' use; and, of course, all such diamonds cannot be reset to give satisfaction. Glaziers' diamonds are best set in the end of a steel wire, first making a recess to receive the stone, and then splitting the end of the wire with a screw-head file, to form four claws to close down on the diamond, to hold it in place and also to properly present the cutting angle. The diamond is now secured perfectly in place by placing bits of fine brass wire, with borax paste upon them, so that, upon heating and fusing the brass, it will melt and properly enclose the diamond. The bit of steel wire is soft-soldered in the swivel end of the holder. A little filing and scraping will smoothe up the end of the steel setting and give it a finished look.

*Old Clocks.—Please give me a good recipe for cleaning old clocks that are gummed up with old oil.*

We know of nothing which will remove old gummy oil like benzine. The great trouble most workmen experience in its use is, they use the same benzine over and over until it is unfit for use, as it really is only a solution of gummy oil in benzine. This leaves a smear on the plates, which causes the oil applied to spread over the plate instead of being drawn into the pivot-hole around the pivot. If, as is usually the case, only clock oil has been used in oiling a clock, benzine readily dissolves the old viscous oil, but care must be observed, as above stated, that the benzine does not leave a smear. To insure success with the use of benzine several applications must be made successively, the last application being so near pure benzine as to leave no smear. Many of our most successful repairers of American clocks, especially cheap levers, use no benzine. They first repoint the pivots of the balance-staff so they are perfect cone points as when new; then they wipe off all the old oil they can with a piece of new cheese-cloth turned over the end of a pine stick cut chisel-edged. These people become very skillful in such wiping and do it in less time than it takes to describe the process. They carefully clean the sinks in the hardened steel screws in which the pivots run. They next oil copiously—putting on more oil than the pivots really require—and, replacing the balance, allow the clock to run for twenty-four hours; then wipe again, to remove all the black dirty oil which has exuded from the pivots. A little fresh oil is applied, and nine times out of ten the clock will run as well as ever. The spring also needs oiling in excess and the extra oil wiped off after the clock has run twenty-four hours. The time actually spent by this plan, after one has become dextrous, will not exceed fifteen or twenty minutes, and it is not difficult to get fifty cents for a nickel clock made as good as new.

*"Pinion."—(1) I find in many cheap cylinder watches that the fourth wheel teeth do not enter the escape-wheel pinion deep enough; is there any remedy? If I attempt to stretch the wheel I get it out of rouna and encounter other difficulties. (2) How can I prepare gold solution for plating to ten or fourteen karat? (3) I have a Baby Giant dynamo; how can I remove fire-coat with it? Should it remove the coat ana leave the gold as it was before it went through the fire? (4) How to resharpen files by elecricity? (5) Can balance-pivots to alarm clocks be rehardened after sharpening? (6) How to use test needles for testing gold, and how to prepare the acid so as to be sure of always having the same quality? (7) How to hard-solder hollow silver bracelets without melting them?*

(1) There is no easy and every-way-desirable plan for correcting bad depths in such watches. The best and easiest plan which has come to our notice is to saw around the jewel with a fine jeweler's piercing saw, so as to form a sort of tongue in the lower plate, with the jewel in the end of it. This tongue can readily be bent to one side to correct the depth. Some watchmakers with over-nice notions call it "butchery"; but our notion is, the method is perfectly justifiable with such cheap half-made watches, as it makes them run without in any way injuring the watch, and the saw-kerf cannot be seen when the watch is together. (2) Take any old scrap gold and add three times its weight of old silver. Melt and thoroughly incorporate the alloy. Roll or beat out the alloy to as thin a sheet as possible. Procure some chemically pure nitric acid, and for every ounce of alloy take an ounce of acid and add half an ounce of water. Place the acid and alloy, cut into small bits, in a porcelain teacup. If in cold weather, place the teacup in a dish of sand and heat the sand, to warm the acid so as to stimulate chemical action. Set the cup and sand bath in some place where the red nitrous fumes given off will not be a nuisance. If the silver alloy does not all dissolve, add a little more acid and warm up again. In the teacup will be a black precipitate which will not dissolve. This precipitate is pure gold, although it looks black. As soon as all the little pieces of alloy are dissolved, pour off the acid into a glass vessel. Pour a little water on the black powder, let settle, and pour into the acid first poured off. Repeat this operation until you have water and acid to five or six times the volume of the original acid. In pouring off the acid and water, be careful that none of the black powder is carried away into the acid-and-water dish, because if the process is properly conducted every grain or even one-hundredth of a grain of gold in the alloy will be in the black powder. After this black powder has been washed, dissolve it in aqua regia, composed of two parts of muriatic acid and one part of nitric acid. Use no more of these mixed acids than will serve to dissolve the black powder, which, as before stated, is pure gold. You now have chloride of gold. To prepare a gold-plating solution from the chloride of gold you have made, you should heat it in a porcelain capsule, to drive off all excess of acid, which can be told by the substance ceasing to be fluid and assuming a dark brown color. Dissolve this neutral chloride of gold (called neutral because any excess of acid has been dissipated by heat) in distilled water, or water from melted ice. The exact quantity of water does not signify; but if you made use of, say, three pennyweights of scrap gold, you would probably have one and a half pennyweights of pure gold. For this quantity use a pint of water. Next make a strong solution of pure cyanide of potassium, say four ounces in a pint of water. Now add of this solution to the chloride of gold solution only enough to precipitate the gold as cyanide of gold. Here comes a very delicate part of the operation, because if you do not add enough of the cyanide solution to precipitate all the gold, you leave some of the gold as chloride of gold; and if you add too much of the cyanide solution, such excess dissolves the cyanide of gold. If the operation is properly performed, that is, just enough cyanide solution added, the gold will all be precipitated as cyanide of gold. The fluid above the precipitated cyanide of gold, usually spoken of in text-books as the supernatant fluid, is poured off and pure water poured on, and again allowed to settle. This operation only washes the cyanide of gold and frees it from soluble salts which are deterimental to a gold-plating solution. After two or three washings and the final water is poured off, pour on the precipitated cyanide of gold enough of the strong cyanide solution to dissolve it, going slow and stirring constantly with a glass rod or a strip $\frac{1}{2}''$ wide cut from a piece of window glass. If, as above stated, you have one and a half pennyweights of gold, add pure water to make one quart. Add to the solution so made a lump of pure cyanide of potassium equivalent to a ball of this substance $\frac{1}{2}''$ in diameter. This last addition is to serve, as the text-books say, for "free cyanide." This solution will only deposit pure gold (Roman color). To make it deposit fourteen-karat, add from fifty to eighty grains of cyanide of copper, which you can buy ready for use cheaper than you can make it. The substance can be had of Bullock & Crenshaw, 528 Arch Street, Philadelphia, Pa. This plating solution is used heated to 120° F. *You should always use an anode as large as the article to be plated.* A fatal error of most novices in plating is to use a small anode, which causes the solution to become impoverished in gold. Do not use alloyed gold for an anode; even gold coin will ruin a solution in a short time. If you have only a small piece of fine gold for an anode, add a little precipitated cyanide of gold from time to time. To keep up the color, use a copper anode in connection with the gold one. Keep a watchful eye on your plating, and if you find you are getting too much copper in the solution, use a smaller copper anode. An old English or Swiss watch dial with the enamel broken off makes a good copper anode. Keep in motion the piece you are plating while the deposit is going on. The depth to which the gold anode is immersed makes a difference in the color of the deposit. Only a corner of the anode immersed will give almost a Roman color from a fourteen-karat solution. (3) Dissolve one ounce of cyanide of potassium in a pint of soft water, and use the article to have the fire-coat removed as an anode. No method of removing fire-coat will restore the polish. The process takes off that sickly green hue we see in band rings after hard-soldering. Always use some kind of an anti-oxidizer when hard-soldering; then the galvanic current will give the freshness of new goods. (4) Make a mixture of sulphuric acid and water, in the proportion of twelve parts of water to one of acid. Add the acid slowly to the water, stirring constantly. Adding the water to the acid is dangerous. Boil the files in a strong solution of common washing soda and water, and scrub with a manilla brush to remove all grease and dirt; then hang the files in the acid solution and connect your dynamo so the files serve as an anode. Keep them in motion during the operation of etching the teeth. The action of the electric current carries the chemical action to the base of the teeth. After the action of the acid, stimulated by the electric current, has brought the teeth to an edge, remove the files and scrub again with soda lye, to neutralize the acid. The best results are obtained with freshly-burned lime made into a mixture with water like thin whitewash. This mixture is applied with a rotary manilla brush in a lathe, letting the brush fiber pass lengthwise of the cuts in the file. After washing, the file is dried in heat and dipped in a bath of olive oil and turpentine, which gives the varnish coat we see on new files. (5). The true plan to sharpen pivots to lever clocks is not to soften them, but employ an emery wheel running at a high velocity. The staff of the balance is chucked in the lathe and revolves with the lathe-arbor while the emery wheel makes five or six revolutions to the arbor one. A few seconds does the work. (6). Test needles are used with a test or touchstone and chemically pure nitric acid, to which one dram of muriatic acid has been added to two ounces of the first-named acid. It is well to mix five or six ounces of acid and keep it in a glass-stoppered bottle. By mixing a quantity and keeping it, we can judge better than by employing samples of acid the strength of which we do not know. The stock bottle, from which the smaller bottle used for testing is replenished, should be kept in a dark closet, as the light affects the acids to some extent. In testing gold, the article to be tested is rubbed on the test-stone, to form a continuous mark say an inch long—not formed by one rub, like marking with a pencil, but by rubbing back and forth several times to form a streak say $\frac{3}{32}''$ wide. On each side of said mark are made marks with two test-needles, one judged to be finer and the other lower in quality than the article tested. The test acid is applied to the stone with the glass stopper of the acid bottle, rubbing it over and across the gold marks, the mark effaced by the acid being of the lowest quality. (7) Hard-soldering articles made of thin sheet metal is a difficult matter. The best advice we can give is to use great care and employ the easiest-flowing solder obtainable.

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Sell him a **Krementz One-Piece Collar Button,** for dress shirts, as represented by cut.

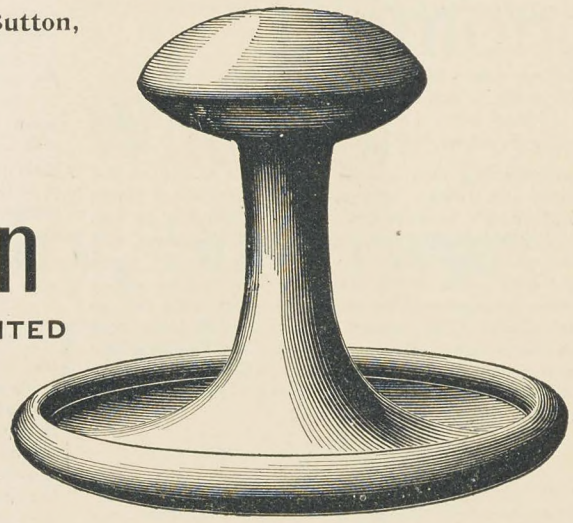
## KREMENTZ ONE-PIECE
# DRESS SHIRT Collar Button

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**Guarantee:** If from **ANY CAUSE** one should get damaged, either in the hands of the **DEALER** or **WEARER**, a new button will be **GIVEN IN EXCHANGE.**



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Extra Long Post. Extra Width of Back.

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2—Never break.
3—Head right shape.
4—Post right length.
5—Easiest to button.
6—Stays buttoned.
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8—**No lever or twist to bother.**
9—No repairs; customer gets new for old one without charge in case of accident of any kind.

18 K., 14 K., 10 K. GOLD, STERLING SILVER AND OWN MAKE 14 K. ROLLED-PLATE.

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# FRANCE

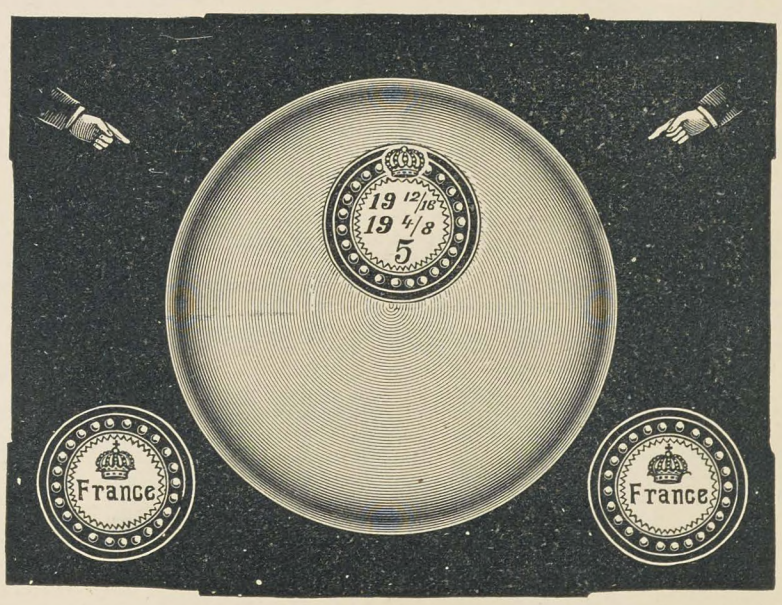
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## Arts Allied to the Jewelry Trade.

XCVI.

### Headstocks.

IN building our headstock we shall arrange to have it swing 10″, that is, the lathe will permit a piece to be turned that is 10″ in diameter. This height of headstock would hardly be desirable if it were not for the fact that the average watchmaker is apt to be an experimenter, and this arrangement will allow him to turn a tolerably good-sized pulley, say one 10″ in diameter. We show at Fig. 1 a side view of the headstock we partially described in our last issue. It is to be made of cast-iron, and of course requires a wooden pattern to be made. The lower part, or base, as we may call it, is made of a piece of pine board 4″ by 5½″, and ⅝″ thick. We show at Fig. 2 an end view of Fig. 1, or as if seen in the direction of the arrow *z*. The supports for the bearings of the lathe-spindle are shown at *E′ E″*, Fig. 1. These supports or standards are cast fast to the base *E*, and in this instance are portions of the wooden pattern for the headstock.

*Fig. 1*

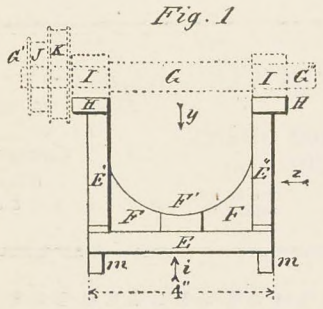
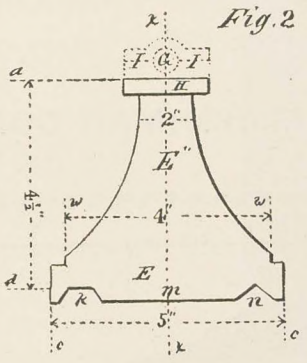



*Fig. 2*



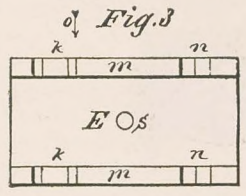

**Some Valuable Lessons in Pattern-Making**

To make such a pattern, we provide enough of the ⅝″ board to make the two standards *E′ E′*, as well as the base. As above stated, we first get out the base 4″ by 5″, and then get out the standards to the shape shown at Fig. 2. In getting out the pieces we let the grain of the wood run up and down. The widest portion of these standards is 4″ as enclosed between the lines *w w′*. The cap *H*, Fig. 2, is 3″ long, 1¼″ wide and ½″ thick. This cap is attached to the top of the standards, as shown in Figs. 1 and 4. The top of the standard, where the caps rest, is 2″ wide. In making, the base piece *E* can be nailed with 2″ wire nails to the standards *E′ E″*, employing two nails to each standard. It is well to reinforce with glue all such joints as that between the base and standards. Such glue is best added after the nails are driven home and we have found all the parts to fit and come together properly.

To get the glue into the joints, insert a knife-blade and spread the pieces apart about ¼″; then with a brush paint hot glue, as prepared by woodworkers, into the joint, after which the nails are driven home again, the joint closed, and the glue allowed to dry. The caps *H* are secured in a similar manner.

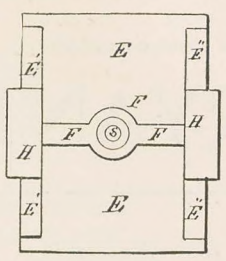
To stiffen the supports *E′ E″*, a curved piece of ¼″ board is set between the two supports *E′ E″* as shown at *F*, Figs. 1 and 4. This support is about ½″ high in the center and 1″ at each end. This support or brace is also nailed at each end, but need not be glued. The bottom of the headstock, as if seen in the direction of the arrow *i*, is shown at Fig. 3. The flanges *m m* are described near the close of our last article.

*Fig. 3*



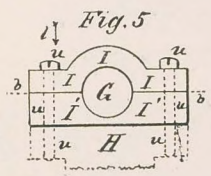

A top view, or as if seen in the direction of the arrow *y*, Fig. 1, is given at Fig. 4. The chief point illustrated in this cut is the flange *F*, which is enlarged in the middle, as shown at *F′*, to permit the passage of the bolt which clamps the headstock to the base block. At the dotted outline *G G′* is shown the spindle of the lathe, with the boxes or bearings at *I I*. These boxes are best made of gun-metal, and bored out to fit the lathe-spindle.

*Fig. 4*



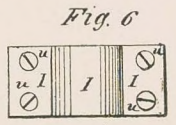

We show at Fig. 5 a view of one of these boxes, seen in the direction of the axis of the lathe. These boxes really consist of two pieces *I I′*, joining on the line *b*, both being attached to the caps *H* with four screws, as shown at *u*, Fig. 6, said figure being a view of Fig. 5 seen in the direction of the arrow *l*. These screws pass through both gun-metal pieces and also the cast-iron cap *H*, as shown at *u u*, Fig. 5.

*Fig. 5*




We have slightly digressed from making the wooden pattern, to speak of the gun-metal boxings. The strips *m m* are tacked to the bottom of the base *E*, but have no notches in them at *k n* until after they are cast. The gun-metal boxes *I I′* are also cast from wooden patterns. The lower gun-metal bearing *I* is flat on the bottom, and is fitted to the cap *H* by simply being made flat on the bottom by filing and scraping.

*Fig. 6*




**How to Fit Up Gun-Metal Bearings**

Of course, it is to be understood that the caps *H* of the supports or standards *E E* are filed and scraped dead level. We show at *I*, Fig. 7, a side view of the lower half of the gun-metal boxing, and at Fig. 8 a top view as if seen in the direction of the arrow *f*. To enable us to remove the box *I I′* from the cap *H* and replace it with absolute accuracy, we place two steady-pins at *t t*. These pins pass through holes in the lower box into holes in the cap *H*. It is to be understood that these steady-pins *t t* only pass through the lower half of the box into the iron cap *H*. To further aid in holding the boxes *I* in place while we are fitting the bearings of the arbor *G*, we place two screws as shown at *s s*. The object of these screws is to keep the lower half of the box rigid while we are filing and scraping the bearing for the lathe-spindle. We show this lathe-spindle by itself at Fig. 9.

*Fig. 7*

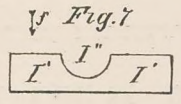



*Fig. 8*

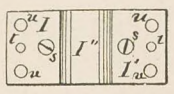
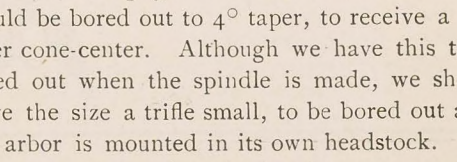



*Fig. 9*




This arbor is, as has been previously stated, made of 1⅛″ machinery steel 10″ long. It will be seen that in the cut we have given all the sizes. If the 1⅛″ steel bar is carefully centered, the center of the spindle at *G* will not be reduced more than $\frac{1}{64}$″, and consequently the shoulder at *r* can be nearly $\frac{1}{16}$″ which will be quite enough. The shoulder at *p* will be nearly $\frac{3}{16}$″, because the lathe-spindle at *G* is ¾″. We can have the boxings *I I′* bored out in some machine shop; but it is well for a man who is a true mechanic to know that he can fit up such bearings by hand with more accuracy than they can be bored out with any machine in existence.

In the cut at Fig. 9 we show at *G‴* a screw turned on the end of the spindle. This screw is ¾″ in diameter and 1″ long, and has a shoulder at *o* which is ⅛″ deep. The diameter of the bearings *G′* and *G″* is ⅞″.

In the end of the lathe-spindle at *G‴* is drilled a hole ⅜″ in diameter; and if desired, this hole can be continued through the entire length of the spindle. If such policy is to be pursued, the steel rod of which the arbor is to be made should be 1¼″ in diameter, to insure having the hole central and still realize the sizes given in the cut at Fig. 9. The hole in the end at *G‴* should be bored out to 4° taper, to receive a ½″ taper cone-center. Although we have this taper bored out when the spindle is made, we should leave the size a trifle small, to be bored out after the arbor is mounted in its own headstock. For fitting up the bearings by hand process, we only need two half-round files of about the curvature of the spindle at *G′* and *G″*, and the machinist's scraper we employed for fitting notches in the base block. How to employ these tools will have to be continued to our next issue.

### How to Fight False Advertising.

F. F. Bartlett, Rumford Falls, Me., fights the general stores that encroach on his business, instead of merely complaining about them. A local grocery man advertised that jewelers charged $12.00 for his $3.95 watch, whereupon Mr. Bartlett put out this advertisement. He offered $25.00 to any one who could prove that his watch was not as good or the same as the grocery man's. The opposition subsided. There being no means of fighting department stores but with their own weapons, Mr. Bartlett's plan seems an excellent one.




**Just look at that:**

Clothing Man's Price, $3·95
Grocery Man's Price, $3·95

**BARTLETT, The Hustler,** sells a Watch just like it, or even better

*You save* **40** *cents, and it is WARRANTED by a Jeweler.* for **$3.55**

It cost one man 75 cents to make one of those $3·95 Watches run—in all, $4·70.
Bartlett has the same thing at a saving of $1.15

*EXPERIENCE IS THE BEST TEACHER.*

# Predicted Prosperity Arriving!

## The "Bryant" Rings.

TRADE MARK

*Are always of* { *STANDARD QUALITY*
*NEWEST STYLES*
*BEST FINISH*

They will always sell when anything will, and cost no more than those of doubtful reputation.

**OLDEST RING MAKERS IN AMERICA**

*Don't wait for our travelers, but send direct to*

## M. B. BRYANT & CO.

**10 Maiden Lane New York**

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## SMITH BROS.

DESIGNERS & ENGRAVERS ON WOOD

119 S. 4th Street, FORREST BUILDING Philadelphia.

PORTRAITS LANDSCAPES BUILDINGS

### CATALOGUES

COMPILED AND ILLUSTRATED FOR ANY BUSINESS.

JEWELERS' AND WATCHMAKERS' WORK A SPECIALTY

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*Rose Diamonds*
*Opals*
*Pearls*
*Turquoise*
*Garnets*
*Doublets*

## MAX R. GREEN & CO.

Importers of

**Precious and Imitation Stones**

31 Masonic Temple, CHICAGO

Our specialty is jobbing stones. Lapidary work given prompt attention. **Your orders solicited.**

*Whitestones*
*Moonstones*
*Onyx*
*Cameos*
*Etc.*
*Etc.*

---

We do ***Watch Repairing*** for the Trade

*BY EXPERT WATCHMAKERS.*

Fine Complicated Watches and Demagnetizing our Specialty.
All work guaranteed. Send us your *Watch Repairing.*

**M. S. FLEISHMAN COMPANY,**
MASONIC TEMPLE, CHICAGO.

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## ESTABLISHED IN 1858.

**FORTY YEARS'** experience in manufacturing **ALL KINDS OF JOBBING MATERIALS** is a good record to offer, and, with unparalleled facilities, places our firm, unquestionably, at the head of this line of business.

We make a fine line of **ALL KINDS OF BOWS.** The following sizes and descriptions in Antique.



240
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



241
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



245
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



250
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



255
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



260
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.

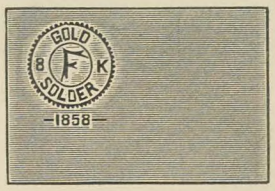


Illustration showing **Steel Hat-Pin, Gold-Plated,** for hard-soldering without pad and soft-soldering with pads, as shown herewith.









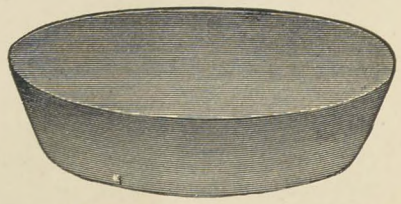




We make **ALL KINDS OF SOLDERS,** too—have made them since 1858. If you want a good article in that line, order the **F 1858 Solder,** from low karat to 22 karat fine, and you will pay no more for it than you would for a worthless article. Retail jewelers can get all the above articles shown of the jobbers; the jobbers and manufacturers, from us.

## Geo. H. Fuller & Son,

Factory, PAWTUCKET, RHODE ISLAND.
CHICAGO OFFICE, 103 State St., Columbus Memorial Building.

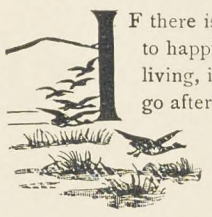


**Polishing Compound.**

Used in place of tripoli. Manufacturers are specially requested to try it.

# Outing in the Woods of Northern Michigan.

By Jeweler Otto Supe, Sault Ste. Marie, Mich.



IF there is one thing more than another that will benefit health and conduce to happiness, that will invigorate the sluggish corpus and make life worth living, it is a good outing—an outing of any kind. You need not necessarily go after deer for it. Game birds in woods and marsh, and the fish in brooks and streams, furnish equally fine sport and give us the much-needed outing. As a class "all jewelers look alike to me." Individually, the jeweler sits at his workbench all day long, trying to earn an honest living, or stands back of his show-cases, trying to "look pleasant," hoping to "land" his customer, until he fairly hates himself and vows that the jewelry business is the worst on earth. If jewelers and those confined to indoor work would take a two-weeks' outing annually, as I have learned to do, away from civilization, where you breathe a different atmosphere, where you eat, drink and sleep differently, and forget that you ever saw the inside of a store or an office, upon returning home everything would seem changed; the work would seem easier, it would be a pleasure to wait upon customers, trade would be better and life sweeter, and you would feel thankful for having taken your nose off the grindstone for that short time. Here is shown a picture of the "meat pole" of our camp of 1897, and to the credit of our party it can be said that we shot and killed the entire exhibit, and six more that were hung up after this picture was taken. Our party, called "The France Hunting Party," because headed by John A. France, who has organized these parties for the past six years, was this year made up of John A. France, court stenographer; J. H. Steele, circuit judge; M. S. Hotton, city treasurer; Otto Supe, "watch tinker"; and James Thorne, *chef*.



The Reward of the Hunt.

We left Sault Ste. Marie on November 5th, with nearly a carful of the comforts of life, guns, ammunition and "bait," and arrived at a small way station in the upper peninsula at night. We unloaded our baggage and stored it in a small freight shed, in a terrific snowstorm. After everything had been carefully stowed away and locked up, we spread our blankets on the soft side of the station-floor and dreamed of the feather beds at home. The next morning we were aroused by the arrival of a teamster whom we had previously engaged to meet us. After eating a hasty cold lunch, we loaded the most important articles land all others that we could, and started for the happy hunting grounds, and three hours after we struck some good country and unloaded near a beautiful creek. After eating another lunch we cleared ground for our tents, and by night had the sleeping and mess tent up, boughs cut for bed, tent banked up, heating stove up to keep us warm, wood cut to feed it with, and things in pretty good shape generally. Jim got up a hasty supper on the heating stove of bacon, eggs, coffee and bread, and nobody was heard criticizing it. After supper, pipes and cigars were brought out, and soon the merry yarns of the deer-hunter were agoing. Being pretty tired the party "turned in" early. I was soon fast asleep on my bed of boughs, and at about midnight I was awakened by a noise off in the woods back of the tents. I listened, and heard the "crunch" through the heavy crust on the snow as if a man was walking toward the tent. I got up carefully, slipped on my arctics, and crept toward the opening of the tent. It was a bright moonlight night, and, upon opening the flap of the tent, I could see plainly for a hundred yards around. I crept out, peered around the end of the tent, the noise kept coming nearer and nearer until presently I saw the form of a deer appproaching.

Whether the cold or the deer, as I stood there in my night garments, made me shiver and shake I don't know; but I shook, and the nearer he came the harder I shook, until he came within fifty feet of me—and what a beauty he was! When he turned around and slowly retraced his steps, I crawled back, woke John and told him about it, and then got kicked because I didn't wake him before. The noise we made startled the deer, and he commenced to snort and whistle, and on that quiet night it seemed as though we could hear him for a quarter of a mile. I dreamed of deer for the balance of the night—and enjoyed it, too. About daylight Jim called "Breakfast ready," and, something singular about it, he never had to call twice.

About nine o'clock the rest of the baggage arrived, and we put up the kitchen tent and cook stove, tables, benches, and all the conveniences for a model camp. In the afternoon we took a jaunt through the woods, looking for signs, so as to lay our plans for the morrow, as that was the opening of the deer season. The ground was very soft and the snow was going fast, and fresh signs were not to be found—plenty of old ones, however. During the night a heavy rain set in and dampened the ground and our spirits as well, and when we stuck our heads out of the tent we found our snow all gone. After breakfast we started out in different directions; I went north about a mile and found the ground very wet. It was impossible to find any signs, but one made no more noise walking carefully on the wet ground than one would on Brussels carpet, and that would permit you to get into close vicinity to your game without its hearing you. I was sneaking across a tableland, when to my left, at the foot of the hill, I saw a small deer grazing and coming towards me. I said to myself "What a snap!" and raised my Marlin to my shoulder and waited for it to come nearer. Just to pass the time I would draw a bead on its eye, head or shoulder to try my nerve, all the time waiting for it to come nearer. My right hand was bare—I never wear a glove on it when hunting—and had got cold, wet and numb, and I did not realize the pressure I was putting on the trigger, and when the deer was about seventy-five feet from me my rifle was discharged, and the sights were not on the deer. Well, talk about being rattled! It was the only time I ever felt so while deer-hunting. I could not shoot until the deer was nearly out of sight, and then with no good effect. I just wished that some aspiring football player had been there so that I could have gotten a good, swift kick. After the deer had got away, I heard him snort and snort; I circled on him over the hill and passed him, but did not know it until I heard him snort to my left. I fooled around with him for about two hours, and saw him again across a hollow, going as if he had a through ticket. I said "Go it," and I'll go, too, and turned for camp as it was getting dinner-time. As I neared camp and was thinking of my bad luck, I saw two jumps of a monster buck. He must have been an old one, for his face was fairly white. When I reached camp the boys were all at the dinner-table, and, as I entered, John turned and asked to see my hands (you can always tell by the hands if one has killed a deer; for in dressing the deer your hands get covered with blood, and with the facilities at hand it is hard to get them clean). They were free from signs, and I threw my rifle on the bunk. I had unloaded it before coming into the tent, which is an iron-clad rule, and is a good one for all hunters to follow, and then told him about the deer that I didn't get. He burst out laughing and told me an exact counterpart of my story which happened to him, only that he intended putting the ball in the deer's eye and missed it completely. That, of course, helped to soothe my feelings, and I enjoyed a laugh at his expense. I will be brief about the balance of our stay, for to give it in detail would be tiresome and take up too much valuable space.

I had the honor of getting the first deer of the party. It was one that Mike had already counted, but he missed it and it came by me, and, like all jewelers, I never let a good thing go by. We had venison steak for supper. Judge was the next lucky man, having downed what he termed a jack rabbit, which he had to carry about three miles to camp. The next deer he got he also carried in, and he said if they hadn't counted just as much as the "big ones" he would have left them for some other hunter. The next one was a fine buck. He got him headed for camp, and when about a quarter of a mile from there he caught sight of him over a small hill, and sent a ball through his neck, killing him instantly. Later in the day the Judge killed a fine doe, and on this same day, the ground being covered with a fresh fall of snow, John and I each got a buck and doe apiece, making six deer in one day for the party. Mike was getting discouraged; he had not one yet, and our good luck was making him feel more so. We jollied him along, and had a hunters' feast that night, and all went to bed happy.

The next morning Mike woke up and said, "Boys, I had a dream last night. I dreamed I got a deer, and I will bring it in this noon." We laughed at him, for he had promised to bring one in so often. This time he fooled us, however, for at noon he came back with the hearts of two deer, and after that things seemed to come his way, and he came home with his limit; and if the Judge had stayed a few days longer he would have gotten five, making twenty deer for the party—as John and I each had five. I will relate how I happened to get another "double." I had been standing on the brow of a hill overlooking a cedar swamp, which made a good hiding place for the deer, since daylight, waiting for something to turn up, and was about to quit my post when I saw a big buck bounding down the hill on my left. He stopped as he reached the flat and looked right toward me. I drew a bead on the butt of his neck, and at the crack of the rifle he started right toward me up the hill, and dropped dead within thirty feet of me. I ran down, set my rifle against a tree, went over and bled the buck, and then stood admiring his antlers. As I stood there I was suddenly surprised to see another and larger buck come trotting along the edge of the swamp. My rifle was ten feet or more away from me; in an instant I threw myself full length into the snow, grasped my rifle, and, while half sitting on the side of the hill, I opened fire on him. After firing three shots, I was gratified to see him stop, shake his head violently, make one leap into the air and fall dead on the ground. This buck weighed 210 pounds, and was the largest of the string.

The gentleman in the left of the picture is the Judge, next is Mike, next is John, and on the extreme right is myself. Now, if what I have written here does not result in your resolving to take an outing, then I feel as if this valuable space has been used for naught.

---

The Keystone heartily endorses Mr. Supe's views on the benefits, physically and mentally, that result from a well-spent outing. "All work and no play makes Jack a dull boy," and a sufficiency of recreation is absolutely essential to the health and mental clarity of all whose work keeps them permanently within doors and entails little or no bodily exercise. All such should seek relief for a short period from business cares and monotony of every-day routine. Mr. Supe's eulogy of the excitement and pleasures of the chase is well deserved, but each one to his choice. The hunt is certainly the king of sports. Not all may be favored with the success that attended Mr. Supe and his party, but the enjoyment will be none the less. Our countrymen are noted for living and working at a lightning pace. They are in fact, recklessly industrious, and an occasional let-up has saved many a life.

# The Waterbury Watch Co.

points with pardonable pride to its work the past ten years in the jewelry trade. It is the one concern that has stood unflinchingly by the trade, preserved for them their just profit, and the only watch manufacturers that have held their prices steady and prevented cutting. We propose to continue this style of doing business, and the many new styles for the season of '98 will assure the trade that we have the popular goods and at popular prices. We make smaller watches than any other American maker, and better timekeepers than any imported watches.

## The Titania

the latest production,
is a 14 karat solid gold bassine,
10 line case, with Elfin movement,
that is the daintiest product of any watch factory.
It can be retailed for **$15.00**, and is a gem.

It is thus named to distinguish it from the many other solid gold case styles, and is a specialty that is most desirable for every jeweler to have in stock.

Samples may be had from any of our selling agencies or from headquarters.

# The Waterbury Watch Co.

Waterbury, Conn.

New York Office,
37 & 39 Maiden Lane.

Chicago Office,
Silversmiths' Building.

San Francisco Office,
Call Building.

## American Lathes and Their Attachments.

XCI.

### Roughing Out Blanks for Wire Chucks.

WE left our blanks for wire chucks cut to double lengths and properly annealed. The next operation is to cut them in half, that is, to a little more than the exact length for a wire chuck, and then to center and bore them out. This is much more of a deep mechanical problem than most people imagine, especially with the tools one must work with in an ordinary watchmaker's kit. The first thing to be accomplished, after cutting the double blanks in half, is to square off the ends of each piece, preparatory to boring the hole or recess which extends back from the grip end of the chuck, and which grasps the wire or piece to be held for turning. We show at Fig. 1 the outline of a blank in full lines, with the outline of the boring-out at the dotted lines *x x*. If we had a large wire chuck which would grasp the blank *A* it would much expedite matters; but as we have no such appliances with an ordinary watchmaker's lathe, we must devise some substitutes which, if not quite as quick and convenient, will do equally as good work.

*Fig. 1*




**How a Bell Chuck is Made**

The first tool we will make, acting under this idea, is a bell chuck for our ordinary American bench lathe. Although such a chuck takes a little time to make, it will be found immensely useful on many occasions besides the manufacture of wire chucks. To make a bell chuck we procure a piece of drill-rod $\frac{9}{16}''$ in diameter and $\frac{3}{4}''$ long. We file one end flat and as nearly square across the end as our skill will accomplish; then place the squared-off end in a step chuck, as shown at Fig. 2, where *C* represents the step chuck and *B* the piece of drill-rod. We carefully center the piece of drill-rod and drill a hole at the dotted line *w* which will just permit the insertion of a piece of steel wire that will fit one of our largest wire chucks, and which should be fully a No. 40 of a Whitcomb, or a No. 18 of a Rivett, lathe—wire a few sizes larger will do no harm. This smaller piece of wire should be securely driven into the hole drilled in the piece of drill-rod, as shown at Fig. 3, where *B* represents the piece of drill-rod and *D* the piece of steel wire driven into it.

*Fig. 2*

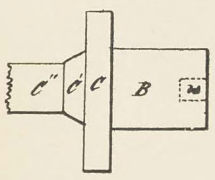
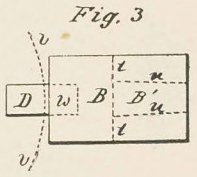
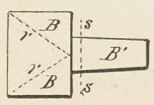



*Fig. 3*



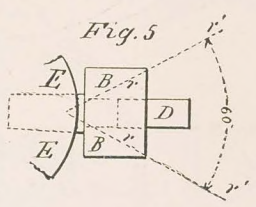

The wire *D* is inserted in the proper size of wire chuck up to the curved line *v*, where it is set up with a secure grip. In fitting the wire *D* to *B*, the joining must be absolutely secure, so *B* cannot come loose from *D* until the job is done. We next proceed to turn off the superfluous parts of *B* outside of the dotted lines *t*, and our bell chuck has assumed the form shown at Fig. 4, the taper shank *B'* being turned to fit the hollow taper in our taper chuck. This turning should be very carefully done, as all accuracy of work depends on the accuracy and perfection of fit of this taper.

*Fig. 4*




To test this fit, the taper chuck is applied to the piece *B'* as it is held by *D* in the wire chuck. The taper *B'*, Fig. 4,. should go into the hollow taper chuck about up to the dotted line *s*, leaving $\frac{1}{16}''$ to go for restoring perfect accuracy at any future time. On placing the new chuck in the the hollow taper chuck it appears as shown at Fig. 5.

*Fig. 5*




The next operation we have in hand is to remove the plug *D* and turn out the piece *B* to a hollow cone, as shown at the dotted lines *r r*. There is no absolute rule for making such bell chucks, but experience has proved that about 60° is about the proper angle. It is evident, on inspection, that if the hollow cone in *B* is bored out perfectly true, any piece of cylindrical metal will run absolutely true at the end placed in the chuck. If we provide two of these chucks, that is, one for the head and one for the tail spindle, a cylindrical piece of less diameter than that of the hollow cone will also run true without any centering. Such chucks should be hardened and tempered to a purple, or, in other words, to such a temper as can just be turned with a graver. There is some knack in tempering such pieces, both to avoid warping and to prevent cracking.

**How to Harden Bell Centers**

For our purpose the best method to pursue is to drill a small hole at the extreme bottom of the cone, and drive in a piece of wire to use as a handle. This hole need not be more than $\frac{1}{40}''$ in diameter and $\frac{1}{16}''$ deep. It is a safe precaution to tap out the hole and screw the end of the wire into the hole. The idea will be seen by inspecting Fig. 6, where *F* represents the wire. The best means of heating such chucks, and also wire chucks, for tempering, is a lead bath. To make one of these for our purpose, procure a piece of wrought iron pipe about $2\frac{1}{2}''$ or $3''$ interior diameter, and cut a piece from it about $3\frac{1}{2}''$ long. Have a blacksmith weld a plug in one end. We show such an iron vessel at Fig. 7. The bottom is supposed to extend up to the line *p*. The handle *H* is also made of iron, and will need to be quite strong, as the device, when filled with lead, will weigh ten or twelve pounds. A thin sheet-iron disk should be cut to loosely fit the iron vessel. We show such a disk at Fig. 8; it has a hole at *n* to admit a chuck or other article to be heated for hardening.

*Fig. 6*

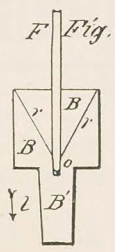
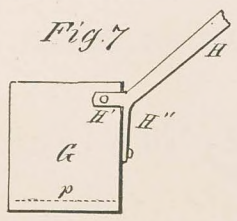
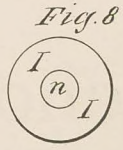



*Fig. 7*




The same arrangement as that employed for heating the annealing box can also be used for heating the iron cup containing the lead. The iron disk shown at Fig. 8 will float on the melted lead like a shingle on a bucket of water. Some fine charcoal powder, such as is employed to fill the annealing box, dusted over the surface of the melted lead and floating iron disk, will, to a great degree, prevent oxidation. We should time our work in such a manner as to have a good number of pieces ready at one time for heating in the lead pot.

*Fig. 8*




The best material for hardening a bell center, as shown at Fig. 6, is kerosene oil of 150° fire test. The chuck is plunged in the oil in the direction of the arrow *l*, plunging down suddenly to cover the entire chuck, and moving it up and down to cool equally and quickly. To temper, place the chuck in a vessel of lard oil and heat until the oil burns freely. Do this last operation out of doors, as the stench is abominable.

If we have a pivot-polisher and the chuck is but a little sprung, the proper plan is to grind out the hollow of the bell chuck, leaving it file-hard.

Such bell chucks, unless they are used in the tailstock, will wear but little and maintain their accuracy for a long time. It is to be understood that two such bell chucks, one placed in the headstock spindle and the other in the tail spindle, will hold a blank for making a wire chuck so it will run absolutely true, provided the ends of the wire of which such blanks were made were cut square across or at right angles to its axis. All these little points are important in constructing absolutely true wire chucks, or, in fact, work of any kind. The next problem is boring out the wire chuck to the line *x x*, Fig. 1.

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The Jewelers League of the City of New York
Incorporated Nov. 1897

President.
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First Vice-President.
JOSEPH B. BOWDEN, . . . . . Of J. B. Bowden & Co.
Second Vice-President.
WILLIAM BARDEL, . . . . . Of 22 Maiden Lane.
Third Vice-President.
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Fourth Vice-President.
J. W. BEACHAM . . . . . With Rogers & Brother.
Secretary and Treasurer.
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EXECUTIVE COMMITTEE:
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M. J. LISSAUER . . . . . Of Lissauer & Co.
G. W. STREET . . . . . Of Geo. O. Street & Sons.
O. G. FESSENDEN, . . . . . Of Hayden W. Wheeler & Co.
BERNARD KARSCH . . . . . Of 641 Eighth Avenue.
DAVID N. SMITH . . . . . Of Wm. Smith & Co.

170 Broadway, New York.

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The regular monthly meeting of the executive committee of the Jewelers' League was held on April 8th. There were present Vice-Presidents Beacham, Bowden and Bardel, Chairman Van Deventer, Messrs. Fessenden, Karsch, Smith, Lissauer and L. Stevens, Jr., secretary. Minutes of the previous meeting were read and approved. Seven requests for change of beneficiary were received and upon motion granted and the following applicant was admitted to membership: Hinman A. Baxter, Passaic, N. J., recommended by L. L. Grear and J. E. Brown. The next meeting will be held May 6th.

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### Some Curious Watches.

The Emperor Napoleon I. had a watch which wound itself by means of a weighted lever, which rose and fell at every step his Majesty took and, having a gathering click to it, wound up the ratchet attached to the barrel. Pedometers were afterward made on the same principle. The Duke of Wellington had a watch given to him by the King of Spain, from which the time could be told by the touch, the hours being marked by studs. In the back of the case was placed an index, which, when moved forward, would stop at the portion of the hour indicated by the watch, and then by means of the studs the time could be approximately computed in the dark. Catharine of Russia had a watch, constructed by an ingenious peasant, which played a chant, and had within it tiny mechanical figures, which, moving about, were supposed to represent the scene of the resurrection of the Saviour. The chant was then heard all over Russia at Eastertime. But this watch was bigger than a hen's egg.

---

*"Enclosed find one dollar for The Keystone. I could not well do without it; it has been worth ten times or more to me than the price paid for it, since I have been taking it."—G. W. Haltom, jeweler, Bowie, Texas.*

ESTABLISHED 1875

C. F. HEINTZ,
L. J. HEINTZ,

# HEINTZ BRO'S MANUFACTURING JEWELERS.

RINGS. A SPECIALTY

AND

# IMPORTERS OF DIAMONDS

Western Headquarters:
103 State Street, Chicago, Ill.

**BUFFALO, N. Y.**

WE WILL BE IN THE MARKET THE COMING SEASON WITH NEW AND ORIGINAL DESIGNS IN

**RINGS,**

**PENDANTS and SCARF PINS.**

IN THE FUTURE, AS IN THE PAST, OUR GOODS ARE OFFERED FOR SALE TO THE LEGITIMATE JEWELERS ONLY.

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# Phillips' Show Cases.

OFTEN IMITATED. ESTABLISHED 1864. NEVER EQUALED.

**Jewelers' SHOW CASES, WALL CASES, Etc.**

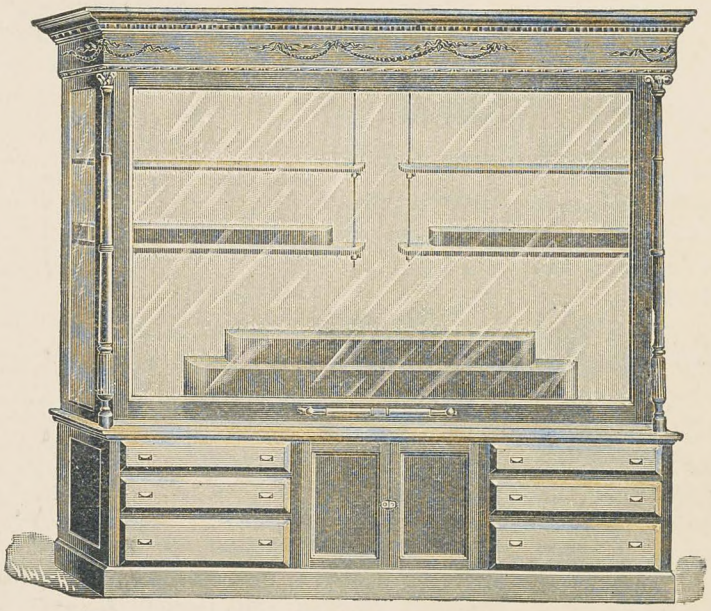


FIG. 34. JEWELERS' WALL CASES.

**STRICTLY HIGH-GRADE WORK at reasonable prices.**
**We use SILVERING QUALITY of GLASS in our best Cases.**

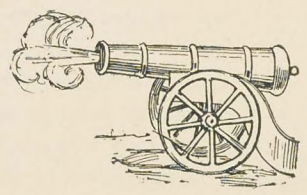
WRITE FOR ESTIMATES.

**John Phillips & Co., Ltd., Detroit, Mich.**

Makers of The *Silent Salesman* TRADE MARK Show Cases.

**The quality of our work is known throughout America.**

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# We Stand Ready

as ever to turn out thorough watchmakers and opticians—not mere theorists, but practical men of skill and scientific attainment, who can start life with the absolute certainty of success. Hundreds of prosperous graduates will commend intending pupils of horology and optics to the

# Waltham Horological School

***which is the oldest and has the best equipment and instructors.***

Thorough instruction given in ***Horology, Engraving*** and ***Ophthalmology.***

Every pupil has the privilege of making a watch while here, and owning it when finished, without extra cost.

***E. H. SWAIN,*** *Proprietor,*

***WALTHAM, MASS.***

*Write for our New Prospectus.*

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The **Peoria**
# Horological School

1426 Main Street, cor. Elizabeth,

PEORIA, ILL.

This School has a thoroughly practical man at its head.

SEND FOR CATALOGUE.

In addressing don't omit STREET or NUMBER.

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# Initial Letters

Two sizes, complete.

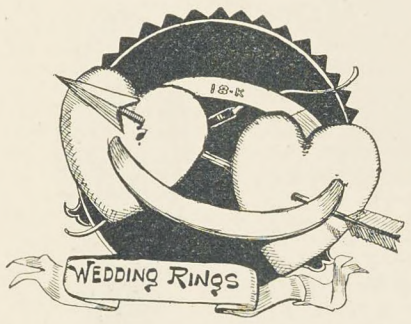
**Price, per set of 26 Letters, $6.00 per set.**

A full line of Border, Tail and Head Pieces, etc., in the same design.
Full descriptive circular sent on application.

***DUNCAN & CO., Electrotypers,***
***621 Commerce St., Philadelphia.***

**Half-Tone Electrotyping a Specialty.**

# SAMPLES OF SEASONABLE ADVERTISEMENTS




## Hearts Joined

Together and beating as one are usually chosen as the symbol of wedded happiness. The ring is the outward and visible sign of the union of hearts, and the wedding ring is therefore forever cherished. The finest assortment of wedding rings is now to be seen at ———. These rings are warranted 18 karats, and are much admired by all who see them. That which is to be preserved through life should be selected with the utmost care. All rings bought from our stock can be subjected to the closest scrutiny. Examination only establishes more clearly their claim to superiority.




Some one who reads this is going to buy a nice diamond very soon, and the question arises, Where will that person buy it? If he is somewhat posted he will look over our stock, and the chances are we will sell him the stone. Our diamond business is growing, and it is due to our judgment in buying good stones only and selling them on a close margin. If you are interested, call around and be convinced.



## Bridal Presents

What must I give? That's the question which may have kept you brain-straining for days. Here's a happy suggestion: Nothing could be more appropriate than

**CUT GLASS or SILVER ARTICLES.**

Both are richly prized by all women, especially young housewives. We have, in the present display, scores of elegant novelties for domestic and personal decoration and utility. The collection of Cut Glass and Silver is exceptionally interesting to all who contemplate the bestowal of a bridal gift.

## If Clocks Could Talk

What a lot of queer stories would be given to the world! What a tale the mantel clock in the parlor could tell—of courting and quarreling and kissing and making up! What a lot of good dinners the dining-room clock has seen eaten, with never a mouthful for itself! And the dainty French clock in my lady's boudoir—how many secrets it must know! To be sure all well-behaved hold their hands before their faces, but they must see everything just the same. We have a collection of handsome and well-behaved clocks—clocks that always tell the truth about time, and that tell nothing else.





## Her Watch Wouldn't Go

I peeped into her watch when she said "the old thing wouldn't go." After a hasty glance I didn't wonder, and my diagnosis was "indigestion." Pasted against the inner side of the case were: 1. A portrait of her first love and a lock of his hair. 2. Some dead forget-me-nots. 3. A newspaper clipping announcing her recent engagement. 4. A four-leaf clover. Between the inner cover and the works were two pictures and a recipe for cold cream. And still the obstinate thing refused to go. How is your watch running? A little slow? A little fast? Is it out of repair? If so, bring it to me and have it fixed right.



## A Dinner Set

Consists of just as many pieces as you want it to. There's no orthodox rule about it. It can be for six or a dozen persons, it can have a Soup Tureen or not, as you prefer. We have a number of choice patterns, that we carry in open stock. You can start with Knives and Forks, and get the same pattern in other pieces later on. Costs no more getting a set that way than if you bought it complete at once.

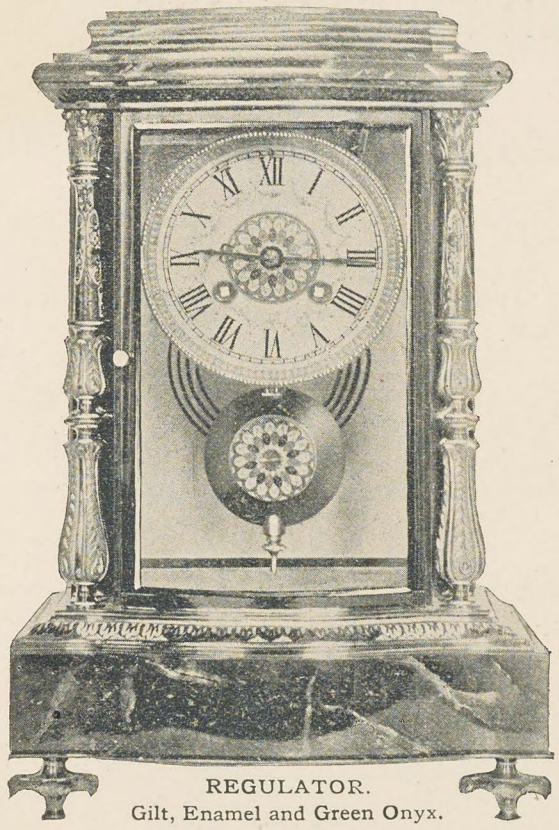


## Jewels for Jewels

Of course, and why not? In the natural order of things nothing else to be expected. Our stock of jewels contains what are jewels with a large J. It's the season now when the belle of the ball weaves her spells, and the beauty instinctively seeks the reinforcement of art. When it comes to jewelry we are floating down in the stream of fashion, and are nothing if not correct. Our stock wasn't purchased to keep. Sufficient unto the season is the stock thereof. In our case "Sell" is the order of business, and sell we will.

[We can accommodate the trade with a large number of cuts, a few of which are shown above, all suitable for advertising. A sheet showing illustrations and prices will be sent on request.—ED. KEYSTONE].

# Gilt Regulators.



REGULATOR.
Gilt, Enamel and Green Onyx.

New styles constantly augmenting the most complete line in the country.

Junghans' quarter-strike Mantel Clocks are controlled by us. In Oak, Walnut and Mahogany Cases; chiming the Westminister Chime on four gongs, and the Wittington Chime on eight gongs.

"ELITE" Weight Chiming Movements also controlled by us.

## BAWO & DOTTER,

Manufacturers, Importers and Commission Merchants,

26, 28, 30 and 32 Barclay St., New York.

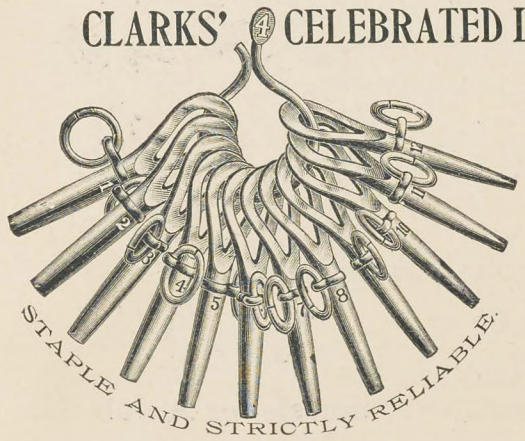
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## A. N. CLARK & SON, Plainville, Conn.,

MANUFACTURERS OF **BICYCLE STAMPINGS,**

CYCLE BOLTS AND NUTS.

## CLARKS' CELEBRATED LOOP WATCH KEYS.




Our endeavor to make our **Celebrated Loop Watch Key** the best key, quality and price considered, in the market is a success, as thousands of watchmakers will testify. We solicit the continued sale of these keys for our mutual benefit.

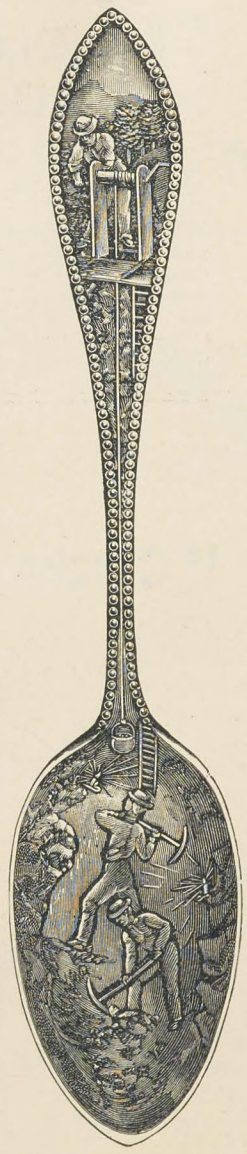
We also manufacture **Crosby's Jeweling Tools, Manicures, Tweezers** and **Key Rings** in variety.

**Order keys through your jobber, who will furnish them at our prices. J. H. Walbridge & Co., Box 1895, New York, are our agents for Tweezers, Key Rings and Manicures.**

---

## These Two Cuts Represent the Front and Back of Our

# Souvenir Spoon



which is especially adapted to any section in any State where underground mining is carried on. As shown here, the cable, running down the back of the handle, forms the word "Montana." For the trade in other States we have the same spoon with the back of the handle plain below the tools. The detail on the front of the spoon is interesting and suggestive. You will notice the miner at the windlass; the hillside, with its growth of pine, behind him, and the sky above; the ladder commencing at the platform and reappearing below; the bucket being hoisted, and the "pardners" working in the shaft.

This spoon is considered by all experts to show exceptionally fine die work, original in conception and perfect in detail, and to better illustrate the mining industry than any other spoon that has been produced in this country. It is the exact size of the cut; is sterling silver, and very heavy. It retails for $2.50.




**THE PRICE to the trade will be, in lots of one dozen or more, $15.00 per dozen.**

**For any number less than one dozen, $16.50 per dozen.**

**A single spoon, $1.50**

Prices are net 30 days, and subject to no discount.

IN ORDERING, please state whether the spoon with the "Montana" or plain back is wanted.

When parties ordering are unknown to us they should send references.

## Hight & Fairfield,

Butte, Montana.

---

# To the Jobbing Trade Only

*THE BEST IS THE CHEAPEST.*

Buy the **Genuine Gold Tipped Waltham Resilient Mainsprings.** Every Spring is guaranteed. The tips and braces are made of a composition metal that will not rust and which is more tenacious than soft steel.

Sole Agents, **HENRY ZIMMERN & CO.,**

*Importers of Watchmakers' and Jewelers' Supplies.* 47 Maiden Lane, NEW YORK.

Sole Agents for the Celebrated

***U. S. American Mainsprings and Ajax Insulators.***

1 Dozen

..GENUINE..

**American**

GOLD-TIPPED

**Resilient Mainsprings.**

*For* *Style*

*Every Spring Warranted.*

## Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

*"Gold Solder Work."—Will you please inform me if there is any way of doing gold solder work without discoloring the article?*—See our reply to "Fire-Coat" in another column."

*"Gilding."—Please give me a recipe for brightening up tarnished movements to make them look like new.*—Dissolve one-half ounce of cyanide of potassium in a quart of soft water. Add a little more cyanide as the solution gets old and weak. Cyanide of potassium is a most deadly poison, and should be used with extreme caution. It is not as dangerous to the touch as is usually believed, as lumps can be handled without danger. Taken into the stomach, three grains is a fatal dose.

*"Swiss Balance."—I have a Swiss movement of very fair quality, the balance of which is composite, like all compensation balances, but the rim is cut only half way through. Will it be practicable to cut this balance all the way through and make a regular expansion balance of it?*—It is usually the practice in Swiss watch manufactories to carefully scrutinize all such balances, and those which are imperfect are not cut, but employed as in the instance you name. The probabilities are that the two segments would not expand and contract alike with heat and cold, and consequently the balance would be thrown out of poise by a change of temperature, and no satisfactory results could be obtained.

*"Brass Horn No. 2."*—A correspondent writes in response to our reply to "Brass Horn" in February, 1898, Keystone: "I have repaired a good many such horns, and the best and only successful method I ever found was to unsolder tips from the slides and then push in a steel mandrel tight; then take a good pair of cutting pliers and grip around the end of the brass slide at its junction with the mandrel, then commence to turn the mandrel and pliers in the same direction, having some one to hold the horn. By employing a steel mandrel you can heat the outside brass slightly, the mandrel keeping the inside one from expanding. I have removed slides in this way which have been corroded in for three years."

*"Demagnetizer."—I had a demagnetizer made for an alternating current. It answered very nicely, but the electric light company has changed to a direct current and my demagnetizer is no good. I rewound the wire and put in an alternator, but it burned out the fnse. Please tell me what to do.*—The trouble you have experienced is probably due to the fact that the new direct current circuit employs a higher voltage. It is usual with alternating currents to employ about fifty volts, while the direct current lines use a current of 110 volts. If this is the case, you require about double the quantity of wire to give the proper resistance. Your alternator which reverses the current should do so at the rate of from 50 to 150 reversals per second. The specimen of wire you sent is probably No. 25 American wire gauge, as it measures .0184″. You will require 3¾ pounds of No. 25 wire for a 110-volt circuit.

*"Alarm Clock."*—(1) *What causes a nickel alarm clock to overbank sometimes in winding, or if picked up suddenly from its regular position?*—The safety action of the escapement does not perform its proper functions. Take a new clock of this kind, remove the movement from the case, and see if you can cause it to overbank while you hold the balance in all positions. You will soon discover what parts are called into action to prevent over-banking. Set the parts of the faulty clock so they are like the correct one, and you have mastered the problem.

(2) *How should the impulse finger be set—the kind of duplex which has two locking teeth close together for every impulse tooth? Is such a movement of any value?*—Set the impulse finger on the balance-staff so it stands, when at rest, just inside the vertical impulse tooth on the escape-wheel when the second locking tooth is on the roller, that is, just going to escape and give impulse. We think few people would give much for such a watch.

*"Oiling Pallets."—Will you please decide this matter: I was instructed to oil pallets after cleaning. I have seen repeated instructions by people claiming to be experts, saying the pallets of fine watches should never be oiled. In my own experience I recently cleaned an E. Howard watch and oiled the pallets; it came back in a little time with a poor motion. I put on fresh oil and it took a fine motion. Again I cleaned off the oil and it took a fine motion. Please give me some reliable basis to work on.*—We have heard the question of oil and no oil discussed in all its moods and tenses; we have even heard some workmen contend that a jeweled pivot-hole would do better if not oiled. Many, very many, say, do not oil the fork; again, many say, do not oil the pallets. Probably most of the believers in the hard-and-fast theories found their beliefs on ready-made opinions, on what their boss said or what they have read. An old adage which applies well to the case in hand is this: "No man is as certain as the man who is mistaken," or believes in a fallacy. There is another mechanical law to which we think there are few doubters, and this is, "Oil abates friction." We may take the most perfectly polished piece of agate or any other hard stone, and try to sharpen a graver upon it, the task would dishearten the most persevering; oil the face of the agate, and we find the graver to slide still more readily over the stone. The truth is, there are many things which bear on the problem of oiling pallet-stones and forks that are not apparent to the casual observer. Any person who has investigated the matter of jeweling is aware that all precious stones are crystals possessed of lines of cleavage. Thus an expert diamond-worker will split off a large fragment of a diamond with an old razor set right and struck but a light blow. Such lines of cleavage are only fissures, but we cannot see them. All manufacturers of watch-hole jewels know that such a jewel must be pierced on its axis of crystallization to give best satisfaction. Pallet-stones, as a rule, are made haphazard, without any regard to the planes of crystallization, and the foliations of any crystallized stone can, in a sense, be compared to the shingles on a roof or the weatherboards of a house, presenting different resistances in different directions. Of course we cannot tell at a glance whether a pallet-stone is cut, so to speak, to rub with the fur or against it. In many instances, we may say in most instances, the ratchet-tooth lever will run best without oil. We have no hesitation in advising that all steel club-tooth escapements should have the pallets oiled. All steel forks should also be oiled. Forks of gold or bronze metal may, in some instances, be left without oil, but the doubt favors the idea of oil. We do not mean in excess, but enough to lubricate the surfaces which rub together.

*"Cannon Pinion."—Please advise me as to the best way to tighten an Elgin cannon pinion. I mean those which have a tongue which is free and extends down toward the pinion.*—We know of a workman who practises the following plan, and claims he has had no trouble since: He files the tongue a trifle thinner, and also gives it a taper so the spring has a flexure from end to end instead of entirely at the upper end, as is the case with a spring of equal thickness from end to end. He then anneals the pinion by heating, and bends the free end well inward, that is, more than is usual with such pinions. He next coats the pinion with a paste made of Castile soap and water, then heats it red-hot and drops it into water. To temper, he takes a strip of ferrotype (usually called tintype) about 3″ long and ½″ wide, and bends one end to form a sort of groove in which the pinion will lie; then placing a small piece of beeswax on the pinion, he heats it until the beeswax takes fire, which produces a high spring temper. He says the tongue never breaks, and gives a good friction. Of course, judgment should be used to not bend the tongue too far in, so as to cause it to break when pushed on to the arbor.

*"Celluloid."*—(1) *Will celluloid cards on jewelry or fountain-pens tarnish jewelry in the same show case?*—Pure celluloid goods should not give off any gases tending to sulphurize and blacken either silver or gold goods; but in this day, when cheapness is the ruling idea, very likely celluloid may be adulterated in such a way to give off sulphurous vapors. Hard rubber is notoriously a blackener of silver and low-karat gold goods.

(2) *How to polish wood such as is used for scroll-saw work, in natural colors?*—See our reply to "Inquisitive," page 964*p*, December, 1897, KEYSTONE.

(3) *How to stop a Welsh eight-day clock from striking the half-hours, if the strike wheel has a half-hour notch in it?*—We do not think there is any remedy except to cut or procure a new count-wheel without the extra notch for the half-hours. We have seen this difficulty overcome where the count-wheel was held by friction, and moved forward a tooth for every stroke, by stretching the last tooth of the count so as to carry the wheel forward two teeth at the last stroke; but we do not feel like endorsing the method as being entirely safe and satisfactory.

(4) *How to accurately fit a balance-jewel to the pivot of the staff of a high-grade watch?*—Read our articles entitled "Watchmakers' Tools, and How to Use Them," in this and the three last numbers of THE KEYSTONE.

(5) *Are there any gauges made for measuring size of hole in a balance-jewel and the size of pivot on staff?*—There are a few on the market, but we know of none which are entirely satisfactory. The articles just referred to will give you the best information on the subject.

*"Pivot-Drill."*—(1) *How to make and shape a pivot-drill for pivoting a balauce-staff without drawing the temper?*—Are you aware that your question embraces an impossibility? What would you say to a man who requested of you a file with which he could file another one of equally as good temper and material? In olden times, when balance-staffs were not tempered as high as they are in American watch factories, it was not a difficult thing to drill a staff; but under the present system balance-staffs are only drawn to a straw color, and it is extremely difficult to turn one with a steel graver, much less to drill it. Skill in pivoting lies not in drilling a hard staff, but in softening such staff until it is not a difficult matter to drill it. Such softening in no way deteriorates the staff if the remaining pivot is left as hard as it came from the factory. In drilling for pivoting, the drill should not be flattened with a hammer; turn the drill, and then file it flat, leaving it at the point about one-fourth the thickness of the diameter of the drill. In shaping the point of the drill, do not form it to cut only in one direction; let the edge be rounded instead of an angle, then sharpen from each side, as with an ordinary cold chisel. Shape the cutting point of the drill perfectly before hardening, and do not touch it, to sharpen it, after hardening. It is a fact not generally known that a drill will, when first hardened, cut harder metal and stand longer than after it has been sharpened. The staff to be drilled should be centered with a sharp graver, to guide the drill, which should be moistened with spirits of turpentine. The lathe should not be turned exclusively in one direction. Let the band be put on the smallest pulley of the cone; then take the band of the foot-wheel between the thumb and finger of the left hand and move it back and forth like a fiddle bow. These remarks apply to a quite hard staff. If the staff is properly annealed, make a drill to cut in one direction, and drill as you would anything else, letting the lathe run in one direction. To soften a staff, see our reply to "Temper," page 707, September, 1897, KEYSTONE. Many of our best workmen prefer to put in two pivots rather than to incur the risk of removing an old balance-staff and distorting the balance.

(2) *How to get out a broken piece of drill when stuck in the hole?*—Quite often pressing a lump of beeswax against the end of the staff where the hole is in which the drill is broken off, will pull the piece out. If this dodge fails, anneal as in the first place and use a new drill.

*"Fire-Coat."—Please inform me of some good formula for taking the "burn" off gold after heating to hard-solder. Weak sulphuric acid works well on silver; do you know anything which works equally as well on gold?*—To remove fire-coat, or "burn," as you term it, the best process is to subject the article to the action of a galvanic current while immersed in a solution of cyanide of potassium in the proportion of one ounce of this salt to a pint of water. The manipulations are the same as when gilding, except that the direction of the current is reversed, that is, the article to be "stripped" (have the fire-coat removed) is placed as an anode, with a plate of plain copper employed as a cathode. An electrical current of such quantity should be employed as to cause gas bubbles to be given off copiously. A few seconds does the work, or removes the fire, as gold-workers term it. The mistake most workmen make in carrying out this process is, they expect too much and think that the cyanide solution is going to leave the article with a high polish and a good color, the same as when new. If they would exercise their reasoning powers they would see that the action of the fire produces a coating of oxide, which penetrates to some depth, and that in removing such oxide the surface of the articles must be left somewhat porous and devoid of polish. The best policy to pursue in all hard-solder jobs is to employ some kind of anti-oxidizer to protect the surface of the metal from becoming oxidized. A favorite preparation for this purpose is composed of pulverized yellow ochre four parts, boracic acid one part. To these add water to reduce to the consistency of thin whitewash, and boil for an hour. This composition is applied like a thin paint to all the parts which are to be heated, except where the solder is to flow, which is left bare, as the preparation prevents the flow of the solder. Let the composition dry on the article, then proceed to solder the article as usual. If this preparation is properly made and applied, heating hot enough to hard-solder will hardly stain the surface, and the cyanide solution will remove any little discolor in a few seconds.

*"Nickel-Plater."*—(1) *How to plate an article with fancy designs, like those we see on the bottom plate of nickel-plated movements?*—The fancy patterns on watch movements are not produced by nickel-plating, but are produced by mechanical means on the plate. Take, for instance, the form of ornamentation usually found on the lower plate of nickel movements, which consists of small circular spots which seem to overlap each other. Such work is done with the end of a spindle tipped with ivory or bone and charged with a mixture of oilstone dust and hard rouge with oil. The plate to be spotted is mounted in the universal head to a lathe, while the ivory tool which does the spotting is placed in a device like a pivot-polisher. The rapidly revolving spindle with the ivory tip touched with oilstone dust and rouge is pressed to the plate for an instant, which operation grinds a small circular disk on the plate. The universal head is moved (turned) a little and another spot made, overlapping the first. This process is continued until the entire plate is covered. In brass imitation movements a coarser material is employed for producing the spots, and then the nickel-plating (very thin) is applied over the spots. The fancy ornamental nickel work, usually called damaskeening in this country and snailing in England, is produced by complicated mechanism, which was described in our articles "American Lathes," commencing in June, 1892, and ending in August of the same year.

(2) *How to make double and single salts, called sulphate of nickel and ammonia?*—The manufacture of nickel salts requires a thorough knowledge of chemistry. The ammonia sulphate can be prepared by dissolving crystals of nickel sulphate in liquid ammonia, forming a dark blue solution; it cannot be recommended, as it constantly loses ammonia. The sulphate of nickel forms ($Ni\,S\,O_4 + 7\,H_2\,O$ 155 + 126 = 281) green rhombic prisms containing seven atoms of water. Sulphate of ammonia, $(N\,H_4)_2\,S\,O_4 = 132$, has the property of replacing one of those atoms of water and forming the double crystals $Ni\,S\,O_4\,(N\,H_4)_2 + 6\,H_2\,O = 395$, a saturated solution of which, with a little water added to diminish the tendency to crystallize, forms the usual nickel-plating solution. The sulphate of nickel is made by dissolving this metal in sulphuric acid. The double sulphate of nickel and ammonia is produced by adding sulphate of ammonia in excess. The double salt crystallizes out on the addition of sulphate of ammonia in excess to the sulphate of nickel, as the double sulphate, though freely soluble in water, is insoluble in the sulphate of ammonia solution. All nickel salts are better (cheaper) purchased than made.

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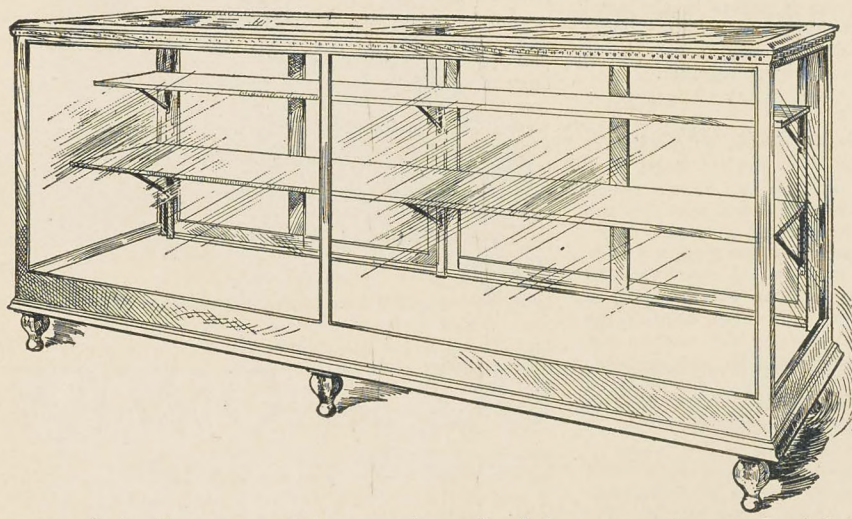
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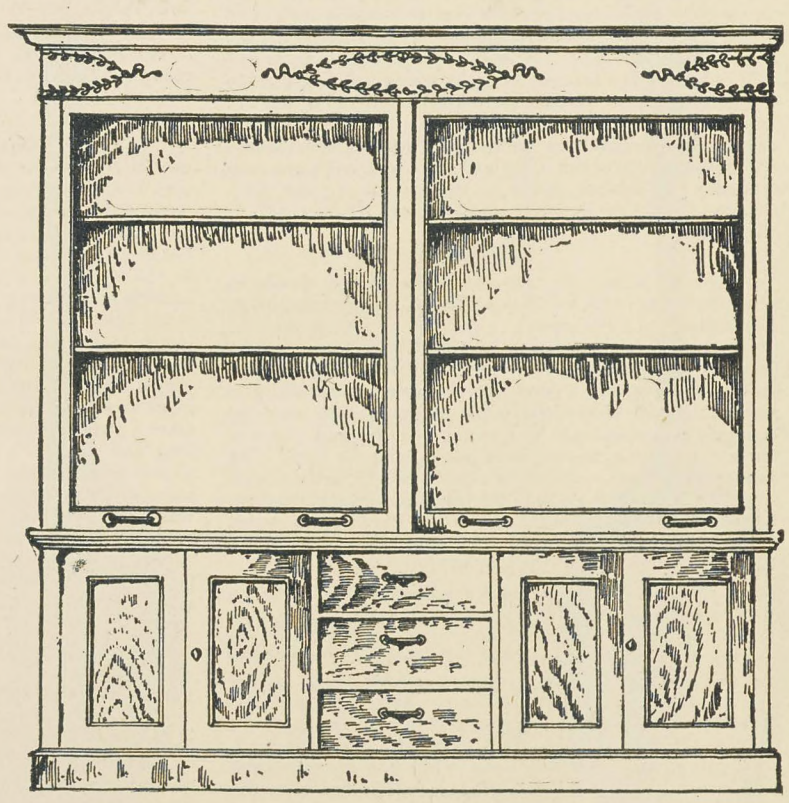
Jewelers with a keen eye in every case relating to their business, saw at once the beauty, utility and cheapness of our **"IDEAL" CASE.**

It is made of quarter-sawed oak, or other wood desired, highly polished, beveled plate-glass top, double strength glass front, ends and doors, has two highly polished shelves of same wood as case, supported by Tom's adjustable brackets, metal legs six inches high, and doors run on steel tracks.

Dimensions :—Length as ordered, 28 inches wide, 43 inches high. upper shelf 12 inches wide, lower shelf 16 inches.

The construction of this case is first-class. It has a nicely molded top ornamented with egg and dart.

***A BEAUTIFUL CASE.***



**Wall Cases.** **Solid Quarter-Sawed White Oak.** 8 feet long, 8 feet 5 inches high, 1 foot 4 inches deep inside. Doors slide up, fastened to Morton's steel chains and weights. Inside of case and shelves lined with black felt. Made to ship in the knock-down.

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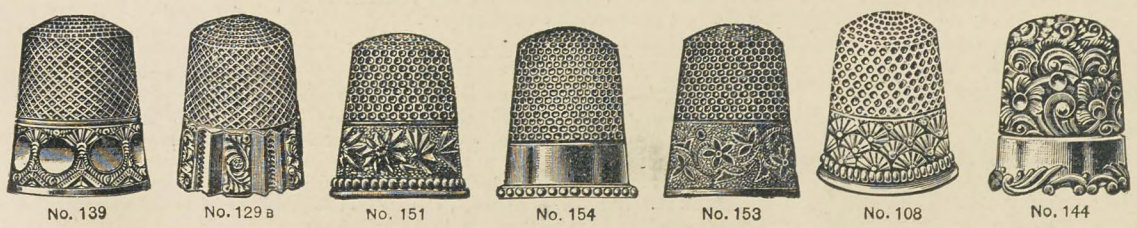
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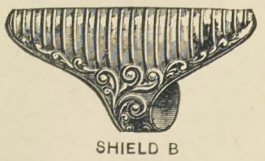


SHIELD B



No. 139 No. 129 B No. 151 No. 154 No. 153 No. 108 No. 144

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SHIELD B

ESTABLISHED 1832

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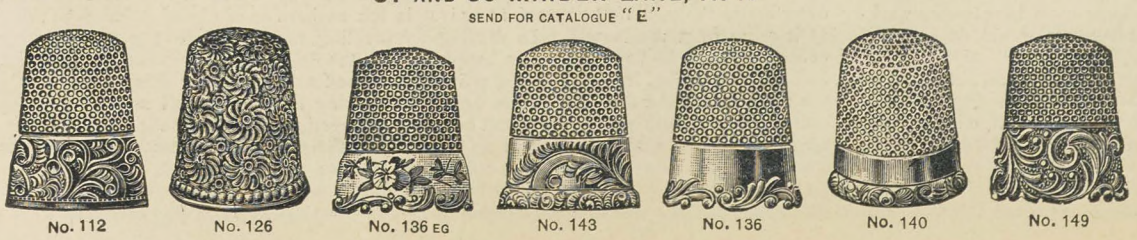
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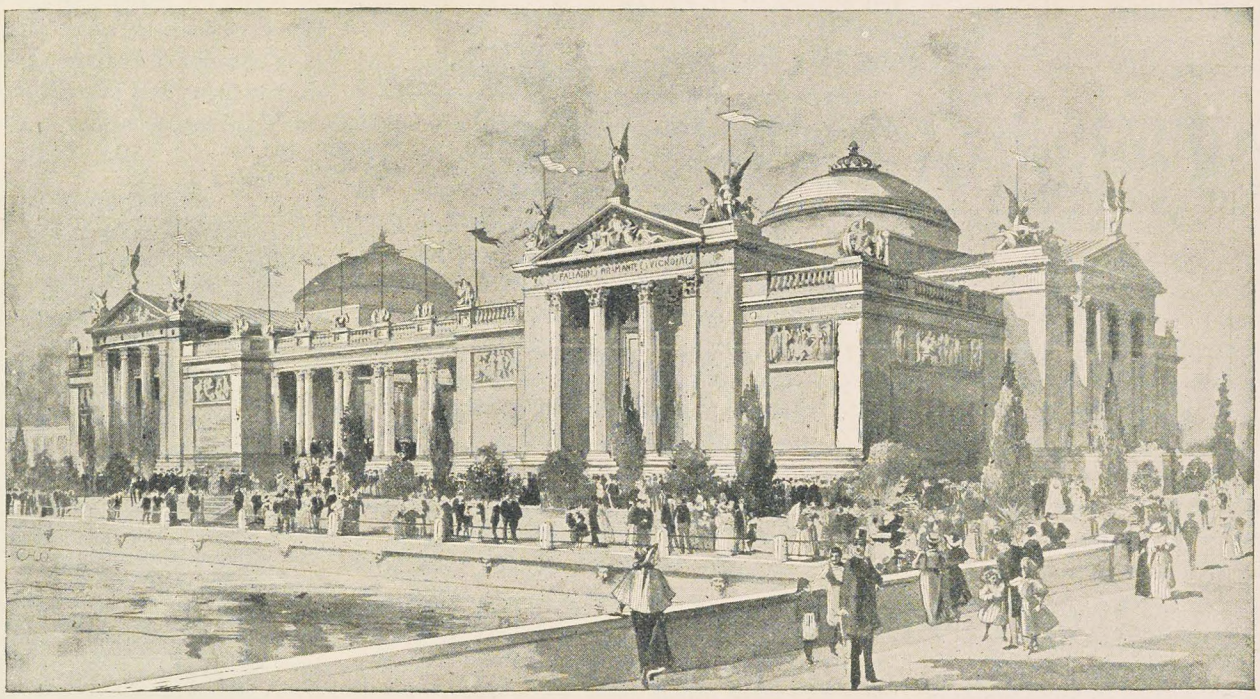
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FINE ARTS BUILDING.

# The Trans-Mississippi and International Exposition.

BEFORE our next issue reaches our readers the magnificent Trans-Mississippi and International Exposition, at Omaha, Neb., will be thrown open and the grounds will be the paradise of wondering thousands. The buildings are now nearly completed, and almost the entire Exposition will be in readiness on opening day. Two of the prettiest buildings are here illustrated.

*The Fine Arts Building*

This handsome edifice consists of twin structures, each 90 by 130 feet, separated by a sunken garden, which is enclosed by a peristyle. Each of these twin buildings is divided into two large and four somewhat smaller galleries, surrounding a rotunda, which is lighted by a large shallow dome. The exterior of the building is adorned with sculpture designed by Mr. Bringhurst, of St. Louis, which consists of a figure of "Fame"—a female winged figure, draped. This figure, ten feet high, is repeated over each principal pediment. There are, in addition, large groups in high relief in each pediment, and at the bases of the flagstaffs groups of Cupids and eagles. A figured frieze, five feet high, surrounds the building, and this is colored. The rotundas and peristyle surrounding the garden contain replica of most famous statuary, ancient and modern.

*The Horticulture Building*

Placed very prominently, the Horticulture Building is a magnificent central feature, around which are clustered the various State buildings and some amusement buildings. It is 130 by 310 feet in dimensions, and 160 feet to the top of the belfry, which contains the chimes. The building is to house the floral, fruit and forestry exhibits and is admirably adapted for the purpose, the high dome, covered with glass, permitting the exhibition of the tallest ornamental plants. In the center of the dome is placed the crystal cave in a pyramid of rocks covered with mosses and flowers, and down the sides of which trickle countless little streams to the pool below. This pool is surrounded by a double colonnade with vaulted arches, forming a grand circle of most impressive beauty.

*The Cosmopolitan Midway*

When the conversation turns upon the Trans-Mississippi Exposition, some one is sure to ask, "And will there be a 'Midway'?" and then reminiscences will be the order of the hour, and again you will see the red fezes of the Turks, the bewitching smile of the Parisian coquette, the haughty glance from the dark-eyed houri of the Orient, the seductive dances of the Spanish senoritas, the slow revolving of the massive Ferris wheel, the little nooks from the other corners of the earth, the swaying, sleepy camels with their loads of laughing, living freight, the queer meals with egg-shell china and chop-sticks served by a shy, dainty bit of occidental beauty; again you can hear the musical songs of unknown tongues—the monotonous chant of ceremonies in strange religions, the lusty call of the "orangeade" boy, the enticing shouts of the fakirs, the growling of savage beasts whose tricks are almost human, the hum of thousands of voices, the laughter from thousands of throats—and all the rest that went to make up that ever-changing kaleidoscope of strange voices, strange people and strange sights. And when, every evening at sunset, the silvery chime of the States will peal from the adjacent building of Horticulture, we predict for the merry crowds leaving the gates of the "Street of Foreign Villages," that they will pronounce that day a pleasant one, that the "Street" was well worth seeing, that it was but one of the numerous delightful features of the Exposition, and that, in short, they are glad they came.

Among the foremost of things unusual will be the smallest train in the world. The miniature locomotive, tender, four observation cars, one box car and a caboose will be, in all, but twenty-nine feet long. This tiny train will be in operation daily on its own tracks, and will serve for the transportation of the little people. Each diminutive car will seat two wee ones comfortably. The engine weighs only 450 pounds, its nearest competitor being a London locomotive which weighs 5000 pounds. This will be greatly appreciated by the children. "The greatest study of mankind is man," and the Midway, on this account, will be one of the greatest of the many attractions. Its success at the Chicago, Atlanta and Nashville Expositions has made it an essential feature of all future ones.



HORTICULTURE BUILDING.

# Watchmakers' Tools, and How to Use Them.

CVII.

### Setting Plate-Jewels.

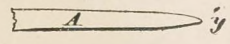
NOW we will take up the setting of jewels in plates and cocks. We have already stated that all jewels should be set in a separate collet or bush. Setting hole-jewels directly in the plate should only be tolerated in the cheapest form of movements, and even these would be all the better for omitting the plate hole-jewels, because no experienced workman will contend that ten or fifteen years' service will only in exceptional cases deteriorate the train-holes of a fairly well-made watch which is not jeweled in the plates. Where accuracy of construction is fully considered, jewels set in collets are the only ones which should be employed. No skillful workman will assume that we can in every instance set a jewel in a plate with the same accuracy that can be secured by setting such jewel in a bush or collet, and then turning off the bush. We are well aware that very high grade watches are made by Swiss artisans, which have jewels set directly in the plate and cocks; but we still enter our protest against such mode of construction.

**Jewel-Setting for the Repair Workman**

As these articles are intended especially for the perusal of the repair workman, we shall not carry the consideration of the best modes of manufacture of watches to any length, but take up the theme of replacing broken plate-jewels as they are met with in job-shop practice. We will now take in hand, as an example, a broken hole-jewel to, say, the escape-wheel pivot of an eleven-jewel watch, in which the jewels are burnished directly into the top plate. Now commences an operation seldom conducted alike even by skilled workmen—we mean the removal of the old jewel. Some very careful and painstaking workmen will, with the point of a very thin knife-blade, raise the flange or lip burnished over the old jewel, and in many instances will be eminently successful.

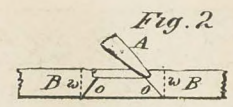
Our plan has been to rest the broken jewel, face down, on some flat surface like a flat-faced stump in a staking tool; then, with a punch much smaller than the jewel, by a decisive blow of a small hammer crush the jewel in its setting. Our choice is a flat-faced stump a trifle smaller than the flat face of the jewel; the punch selected being a ball-faced one which nearly fits the cup or sink in the jewel. The jewel is rested on the stump and the punch placed in the sleeve of the staking tool and gently pressed down, which serves to center the jewel over the stump; then a blow with a light hammer will crush the jewel. The opening tool shown at Fig. 1 will soon displace the pieces. This tool is made out of an old 4″ round file, the end tapered and rounded as shown at *y*. Satisfactory results depend much on the shape of the point, the extreme tip of which is rounded and polished.

*Fig. 1*




We have seen and tried many patented and "pat. apd. for" devices for resetting jewels, but never found a tool or device which would succeed as satisfactorily as the simple little device illustrated at Fig. 1. We do not claim anything new about it, but we never knew a workman, after having mastered the capabilities of the tool, to abandon it for any other. After the new jewel is in place it is the best instrument for burnishing down the old flange. The cut at Fig. 2 shows how the tool we have described is used in raising the flange of a setting, the parts *B B* being a vertical section of the watch-plate.

*Fig. 2*




**Blind Jewel-Settings**

We will next consider the operation of replacing a jewel when the setting is destroyed. We have, apparently, two kinds of settings employed where jewels are set directly in the plate. They are really the same, except that they have a slight ring turned in around the sink to represent a bush, and also have two or three screws sunk in the plate to imitate jewel-screws. In either case the methed to be pursued is the same, that is, we set the jewel in a bush, but not one of the form employed when the bushing is secured with screws. For such bushes we employ brass wire which fits a No. 1 Rivett or a No. 60 Whitcomb chuck, and proceed to set our jewel.

As the method is slightly different from any mode of setting which we have described, we will go into details. At *C*, Fig. 3, we show the end of a piece of wire such as we are to employ. We first center and drill a good-sized hole in the end, as shown at the dotted lines *z*. The next operation is to turn a seat for the jewel, as shown at the dotted lines *v*. This step should be $\frac{15}{1000}$″ wide, and square-cut. In the present instance the jewel is to be set deep, that is, so its flat face is about $\frac{1}{50}$″ below the flattened face of the end of the wire. This will be understood by referring to the lines *t u*, the latter coinciding with the face of the setting, and the former to the face of the jewel. It seems hardly necessary to give all details of setting, because they are almost identical to those given in our last month's article. At Fig. 4 we show a section of a jewel and the style of setting we propose to employ. In this cut it will be seen we have turned a recess back of the flange *s*. This recess determines the diameter of the setting where it rests in the plate *B*, Fig. 2. At Fig. 5 we show a vertical section of the finished setting and jewel.

*Fig. 3*

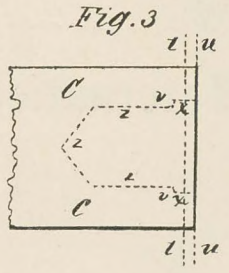



*Fig. 4*

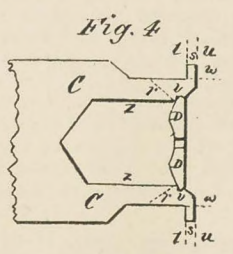
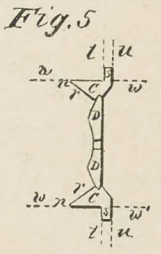



*Fig. 5*




To make use of this style of setting, we broach out the hole in the plate to correspond to the full extent of the beveled surface of the sink. This will be understood by inspecting Fig. 2, where we show the dotted lines *w w*. It is to be understood that we are to broach out the hole in the plate to the extent of removing the bevel surface *o o*, Fig. 2, of the sink, and the outer diameter of the setting is turned to fit this hole. We can do this just after we set the jewel, or we can leave this part of the setting a trifle larger and employ a cement chuck, as explained for setting escapement hole-jewels. In carrying out the details of setting jewels in this way, we force the setting *C* into the hole in the plate until the flange *s* rests on the inside of the plate. If the work is properly done, the inner face of the jewel will exactly correspond to the inner face of the plate and the proper endshake established. After the setting is in place, the watch-plate is put in the universal face-plate and the inner face of the bevel *r*, Fig. 5, is turned out to agree with the plate. The edge of the setting at *n* can be burnished over the plate for additional security.

### Old Coins of Great Value.

In the estimation of coin collectors the most valuable of all the American coins to-day is the perfect silver dollar of 1804. That particular coin is worth whatever an enthusiastic collector is willing to pay for it. The highest auction price is $1,000, and there is a record of $1,200 having been paid for one at private sale. Only thirteen of them are known to exist, and each has a record of ownership.

Lyman H. Low, the skilled numismatist, in discussing the subject of coin collections, said:

"There are many rarities in the different series of United States coins, and some of them command pretty high prices. That which has the highest record with us is the 1804 dollar, and there are probably several hundred mistaken claims made each year by persons who think that they have one of these dollars. This mistake arises from a confusion of other coins bearing the same date with the United States silver dollar. The Spanish-American eight-reals piece, or dollar, is dated 1804, and the Bank of England has an 1804 issue, which is stamped 'Five shillings or dollar.' Occasionally some bunglingly-altered coins turn up as alleged 1804 dollars.

"Next to these rare silver dollars the coin collector prizes the half eagles, or $5 gold pieces, of 1815 or 1822. These are worth from $300 upward. Of the other rarities in the gold series the most notable are the $1 piece of 1875 and the $3 pieces bearing the date of 1875 and 1876. In the series of silver half dollars, the most valuable are the coins of 1796 and 1797. The lesser lights among those sought by collectors are the halves of 1794, 1801, 1802, 1815 and 1852. High prices are realized by silver quarters of dates prior to 1815, when they are in the mint state or not very much worn. The quarters most in demand, and consequently most valuable, are those of 1823 and 1827. An 1802 half-dime is very valuable. A choice specimen will bring $100 or over at any time. The 1804 dime is probably the rarest, and it is fair to say that any early American dime in a high state of preservation is valuable. This statement applies also to almost any of the copper cents bearing dates prior to 1840, especially when they are in the mint state or near thereto. The rare sets of copper cents may be noted in the following order: 1799, 1804, 1793, 1809 and 1811. In the issues of other dates the question of preservation is most important. The old 2 cent pieces, which were coined from 1864 to 1873, have no special value, except those of 1873. The 1873 coins were never struck for general circulation, but were put in proof sets of that date.

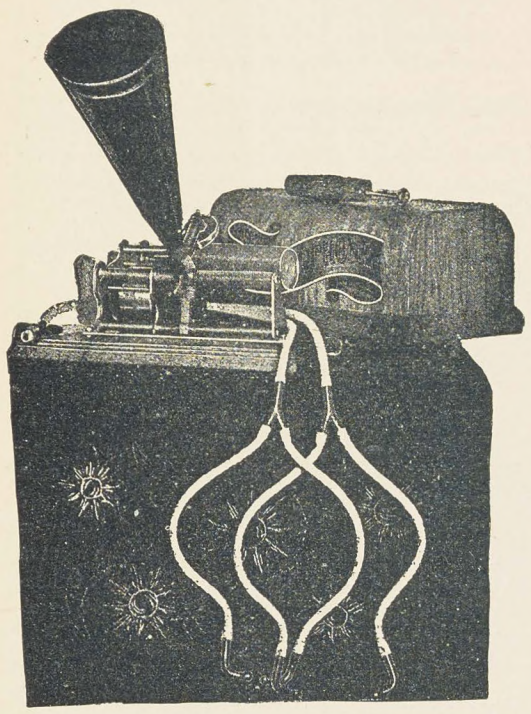
"Then there is the little 3-cent silver piece, the coining of which began in 1851 and ended in 1873. All the issues of the last eleven years are in demand. Perfect specimens are rare. Of the small copper, nickel and bronze cents the coin that bears the date of 1856 is the only one that is prized."

In the course of a year great quantities of old coins are submitted to Mr. Low for inspection and appraisal. He is a recognized authority in the science of numismatics, and is one of the very few men in this country who devote exclusive attention to the handling of rare coins. His catalogue of "American Colonial and United States gold, silver and copper coins worth more than their face," is an interesting little book. When asked what proportion of the coins submitted to him for examination were really valuable, Mr. Low replied: "Well, to speak figuratively, I have to go through a wagonload of coins to find one of unusual character or value."

### The Good Window

The average retailer knows that in building a store for himself the window front should not be made too small. Eight feet in width is the smallest that is permissible in this connection. The depth should be at least five or six feet. It is not maintained, however, that these figures are to be accepted as an arbitrary standard, because no definite standard has ever yet been made that would apply to all sorts and conditions of retail stores. But in the main it may be said that every inch taken off these dimensions will decrease the value of the retailer's display in geometrical progression. —Ex.

# DO YOU Want to Sell Goods for Profit? If so, here's a chance!



## The "COLUMBIA" Graphophone.

CLOCKWORK MOTOR.

The Columbia Graphophone is larger and more finely finished than the Eagle, and so substantially made that it will last a lifetime. It is attractive in appearance, being neatly cased in a cabinet of polished wood provided with handle for convenience in carrying.

**PRICE, including recorder, hearing tube and speaking tube, complete outfit, - - $25.00**

When the purchaser prefers it, a 14-inch japanned tin horn will be furnished instead of the hearing and speaking tubes.

**Write for Agents' Discounts on**

## $10 The "Eagle" Graphophone $10

### A REAL TALKING MACHINE NOT A TOY

This is the **Latest Talking Machine,** and so simple a child can operate it. Runs with **Spring Motor Power** (no electricity required). It is automatic, durable, and is furnished with the **New Aluminum Reproducer,** hardened steel bearings, and is nickel-plated throughout. Makes a very pretty machine. The spring motor has a double spring, is noiseless winding and noiseless running. Plays two records with one winding. Reproduces either phonograph or graphophone records just as loud and perfect as any of the more expensive machines. These machines are adapted for home entertainment and concert work.

1 Eagle Graphophone Talking Machine with Aluminum Automatic Extra Loud Reproducing Sapphire Diaphragm, Hearing Tube for two persons, and Small Concert Horn . . . . . } **Complete Outfit, $10.00**

Fine Oak Carrying Case . . . . . **Extra, $2.00**

**New, Simple, Cheap, Profitable,** **$50 Nickel-in-the-Slot Machine**

### A NEW MODEL

Clock-work, Nickel-in-the-Slot Graphophone is now ready, which can be used anywhere, requires no electricity, costs nothing to maintain, gives perfect service, and retains all the charm and beauty of reproduction of the more expensive Talking Machines.

**OUTFIT CONSISTS OF**

1 Combination Coin-in-the-Slot and Exhibition Graphophone, with Oak Cabinet . . . .
1 Nickel-Plated Horn . . . . . } **Complete Outfit, $50.00**
1 Automatic Extra Loud Reproducing Diaphragm . . . . . }
1 Single 2 or 3 Way Hearing Tube, complete . . . . . }

Records, 50 cents each. Each Record can be used several hundred times.

**Columbia Records (your own selection), 50 cents each, $5.00 per dozen.**

Catalogue, with complete list of Records and full information on above Machines, mailed free upon application.

**WRITE FOR SPECIAL AGENTS' DISCOUNTS.**

---

# *NON-MAGNETIC WATCHES*

**Containing PAILLARD'S PATENT COMPENSATION BALANCE and HAIRSPRING, which are uninfluenced by magnetism and are adjusted to temperature. For durability, fine workmanship and accuracy of performance they are unsurpassed.**

## NEW IMPROVED 18 and 16 SIZE, Hunting and Open-Face.




**F** Nickel, adjusted to temperature, isochronism and positions, 21 extra fine ruby jewels in gold settings, compensation balance with gold screws, patent regulator, Breguet hairspring, double sunk glass enamel dial, elaborately damaskeened in gold, with black enamel lettering.

**G** Nickel, adjusted to temperature and positions, 17 jewels, compensation balance, patent regulator, Breguet hairspring, double sunk dial, handsomely damaskeened in gold lettering and gilded steel work.

**H** Nickel, 17 jewels, compensation balance, patent regulator, Breguet hairspring, double sunk dial.

**I** Nickel, 15 jewels, compensation balance, patent regulator, Breguet hairspring, double sunk dial.

**K** Gilded, 15 jewels, compensation balance, patent regulator, Breguet hairspring, double sunk dial.




**No. 74.** Nickel, 15 jewels, compensation balance, patent regulator, Breguet hairspring, dust-band.

**No. 75.** Gilt, 15 jewels, compensation balance, patent regulator, Breguet hairspring, dust-band.

**No. 76.** Gilt, 11 jewels in settings, compensation balance, patent regulator, Breguet hairspring, dust-band.

**Descriptive confidential price-list, with full information, mailed on request of any regular jeweler.**




**16 Size, 3-4 Plate, Paillard Non-Magnetic.**
Hunting and Open-Face.

**No. 71.** Nickel, 20 finest quality red ruby jewels in gold settings, jeweled center, full cap jeweled escapement, Breguet hairspring, accurately adjusted to temperature, isochronism and all positions, micrometer regulator, double sunk dial, finely damaskeened and finished throughout.

Regular price, $50.00

**Cut Price, $25.00, net cash.**

Hunting and Open-Face.

**No. 72.** Nickel, 18 fine ruby jewels in gold settings, center jeweled, cap jeweled escape wheel, Breguet hairspring, accurately adjusted to temperature, isochronism and six positions, micrometer regulator, double sunk dial.

Regular price, $35.00

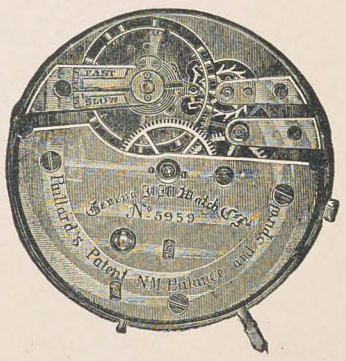
**Cut Price, $17.50, net cash.**

Hunting and Open-Face.

**No. 73.** Nickel, 16 ruby jewels in gold settings, jeweled center, Breguet hairspring, adjusted to temperature, isochronism and four positions, micrometer regulator.

Regular price, $25.00

**Cut Price, $12.50, net cash.**




**16 Size, Paillard Non-Magnetic.**
Hunting only.

**No. 61.** Nickel, 20 finest ruby jewels, center jeweled in gold setting, full cap jeweled escapement, adjusted to temperature, isochronism and six positions, micrometer regulator, Breguet hairspring, double sunk dial.

Regular price, $60.00

**Cut Price, $30.00, net cash.**

Hunting only.

**No. 62.** Nickel, 18 fine ruby jewels, center jeweled in gold setting, cap jeweled escape wheel, adjusted to temperature, isochronism and four positions, micrometer regulator, Breguet hairspring.

Regular price, $50.00

**Cut Price, $25.00, net cash.**

Hunting only.

**No. 63.** Nickel, 16 ruby jewels, center jeweled, adjusted to temperature, isochronism and four positions, micrometer regulator, Breguet hairspring.

Regular price, $40.00

**Cut Price, $20.00, net cash.**

# A. C. BECKEN, 103 State St., Chicago, Ill.

NEW YORK OFFICE for Paillard Non-Magnetic Watches, 54 Maiden Lane, C. R. RANDALL, Agent.

**Adjutant Ralph S. Hamilton, Jr.**

In these war times, when all else is overshadowed by the military, we take pleasure in presenting to our readers the portrait of Ralph S. Hamilton, Jr., son of Ralph S. Hamilton, of the firm of Hamilton & Hamilton, Jr., of Providence, R. I. Mr. Hamilton has been appointed adjutant of the First Regiment of the Rhode Island militia, a position of great honor and responsibility in view of current happenings. The youthful ad-



jutant was born in 1876 in Providence, where he also received his early education. Subsequently he entered the military college at Chester, Pa., an institution ranking next to West Point. From this institution he graduated last June with high honors, and has already been advanced to the honorable office above mentioned. Adjutant Hamilton is a young man of varied attainments and mature judgment. His military enthusiasm and patriotic fervor have been much aroused by the present war.

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The addresses of the various offices of Hamilton & Hamilton, Jr., of Providence, R. I., are as follows: Providence, 7 Eddy Street; New York, 11 John Street; Chicago, Silversmiths' Building, 131 Wabash Avenue; San Francisco, Mills Building; London, England, 94 Hatton Gardens.

## Items of Interest.

The Waterbury Watch Co. has changed its offices in Chicago and San Francisco. The Chicago office is now in the Silversmiths' Building, and the San Francisco office is in the Call Building. The New York office is at 37 and 39 Maiden Lane.

The C. F. Monroe Co., Meriden, Conn., have decided to stamp their trade-mark on their Wave Crest ware, which has become so well known throughout the trade. They have been requested to do this by many of their customers in the trade, who think it would assist in the sale of their goods. The Monroe Co. is now working on a new catalogue. As there will only be a limited number of these issued, it would be well for any one desiring one to at once make application for it. It will illustrate their full line of wedding and holiday novelties.

Jeweler George F. Bloser, of Greencastle, Pa., has recently put in new fixtures and otherwise improved his store. The Union Show Case Co., of Chicago, furnished the new outfit.

Heimberger & Lind, Providence, R. I., have placed at the service of the trade some beautiful Grecian designs, among them the goddesses Juno and Minerva. Also, designs of Raphael, the Italian painter: Ceres, the goddess of fruits and flowers; Paris, the shepherd boy; Ajax, the man who defied the lightning; and Venus, the goddess of love.

The Queen City Material Co., Buffalo, N. Y., offers a year's subscription to THE KEYSTONE free with every twenty mail orders received from any individual jeweler.

Tiffany & Co., New York, have announced that those of the State militia who are in their employ will receive full pay during the time spent serving their country, and that their positions will be kept open for them.

John Ruge, who has been in the jewelry business the past six years at 611½ Nicollet Avenue, Minneapolis, Minn., called on his father, at Faribault, Minn., Easter Sunday, to congratulate him on being elected Mayor of that city, which is his old home.

We have several times mentioned the desirability of cameras as a side line for jewelers. We again call the attention of the trade to this line and recommend it as easy and profitable selling. Benj. Allen & Co., of Chicago, have just issued a most useful and handy catalogue, illustrating and quoting lowest prices on cameras and photographic supplies, which they gladly send to any jeweler who will write them requesting it.

J. E. Reid, Rochester, Minn., has opened a factory for the manufacture of gold jewelry, rings and diamond mountings. He will also do gold and silver plating and general work for the trade.

Gustave Keller, jeweler, headed the Democratic ticket for Mayor of Appleton, Wis. Mr. Keller is only thirty years old and very popular.

Thomas E. Platt, Paterson, N. J., was recently elected president of the Commissioners of Public Instruction by the unanimous vote of his brother Commissioners.

A. Keshishyan now has charge of the watch and jewelry department of A. White, Vallejo, Cal.

H. H. Shelberg, Kansas City, Mo., recently returned from a long trip through Fort Worth, Texas, to El Paso, Old Mexico, and over California, visiting on the homeward trip Pueblo, Colorado Springs, Mountain Springs, Denver, Col., and many other places of exceptional interest.

H. Roller, Stockton, Cal., has opened an exclusive optical store in that city.

D. E. Hardy, formerly of San Francisco, Cal., has moved to Placerville, Cal. He says there are now four watchmakers there, too many, he thinks, for the size of the town.

The Faneuil Watch Tool Co., Boston, Mass., have issued a handsome catalogue of over 100 pages, giving illustrations, descriptions and prices of Rivett lathes and tools for all modern shop practice. It is a handy and useful book of reference for all mechanics, and is printed on extra fine paper, with a handsome cover ornamented with a cut of the medal presented to the company by the World's Columbian Exposition, representing the highest award for excellence and efficiency.

The annual meeting of the Iowa Retail Jewelers' Association will be held at Webster City, May 10th. While there has been more or less apathy in the past year or more, in the work of some of the State associations, there is no reason why the coming meeting of the Iowa jewelers should not be a successful one, both in numbers and the work accomplished, as undoubtedly much good can accrue from proper trade associations. The goodfellowship and interchange of business ideas that flow from such organizations alone repay for the outlay involved, to say nothing of the various other missions that properly come within this sphere.

The manufacturers of the Lamb Eye-Shield have recently made a change in the construction of the Shield that is a big improvement over the old kind. They are now using a brass hinge, instead of a stiff center piece to join the shield in the center, and the hinge frames of the shield being folded into just half its size. The large, bulky cases necessary for the old shield was one of the objections to them, which the improvement overcomes. The company has been making arrangements to introduce the shield into the army for use of the troops that may be sent to Cuba, where the effects of the ropical sun is very severe on the eyes.

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WILMINGTON, OHIO, April 26, 1898.

EDITOR KEYSTONE:

Enclosed find a renewal of my subscription. War, or no war, we must have the "KEYSTONE" to the situation; and continue business at the old stand until William calls for us, then we will go—to the doctor and get excused.

Yours, etc., D. A. LAMB.




*ELK BADGES.*
*Charms, Spoons, Souvenirs, Etc.*
SCHLECHTER,
The Badge Manufacturer,
Reading, Pa.
ELK TEETH BOUGHT AND SOLD.



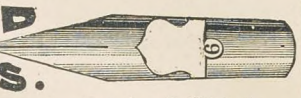
4 ft long $13.50 cash with order.

*DESKS,*
Chairs, Cabinets, Letter Files.
THE U. S. DESK, FILE & CABINET CO.,
Indianapolis, Ind.



EDWIN F. LEOPOLD & CO.,
103 State Street, Chicago.
Largest manufacturers of **Photo. Buttons and Photo. Novelty Jewelry** in the West.
To the trade:—Write for an agency. Send 25 cts. for sample card. 50 per cent. discount.
**Photo. on Watch Dials and Cases, $1.00 cash and return postage.**

Chicago Gold Pen Repairer.
GOLD PENS.



Send me your work. *Repairs of all kinds.*
S. N. JENKINS, 103 State St., Chicago, Ill.

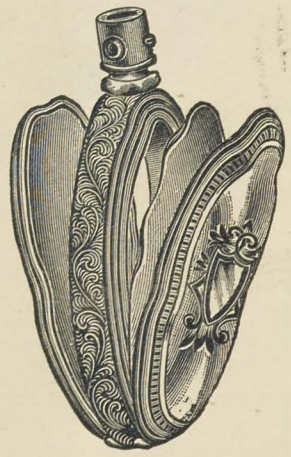
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OUR CATALOGUE FOR THE ASKING.

SIGNS FOR ALL TRADES AND PROFESSIONS J.W. RUSSELL & CO. MN'F'RS. 294 PEARL ST. NEW YORK. CATALOGUE GLASS & METAL

EXPERT
Watch Case Repairing
and
Watch Case Manufacturing.

Gold and Silver Plating, Satin Finishing, Engraving and Engine-Turning.

Old English and Swiss Cases changed to fit American Stem-Wind Movements.



Special Cases made to order in Gold and Silver for English, Swiss and American Movements.
OLD CASES MADE NEW.
F. H. JACOBSON & CO.,
86 State Street, Chicago.
*Send for Our New Price-List.*

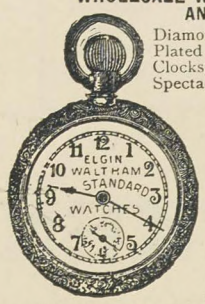


50 PER CENT. COMMISSION
Big attraction for your window, and money in your pocket.
Photo. Button Easel Card sent free to jewelers. Shall we send you one?
Photograph Novelty Co.
125 State St., Chicago.
Originators of Photo. Buttons.

HEADQUARTERS FOR ELECTRIC AND PORTABLE
WATCHMAN'S CLOCKS
E. O. HAUSBURG, 41 MAIDEN LANE, N. Y.

Did You Ever Investigate
THOROUGHBRED POULTRY?
There's profit and pleasure in raising thoroughbreds; loss and worry in raising mongrels.
Our Birds are all blue-blooded, mated scientifically for best results. Write for handsome illustrated catalogue, describing our Brown and Buff Leghorns, Barred and Buff Plymouth, Light Brahmas, and Warhorse Games.
We ship any distance, and guarantee satisfaction.
KEYSTONE POULTRY FARM
Valdosta, Ga., U. S. A.

GORDON & MORRISON,
WHOLESALE WATCHES, JEWELRY AND OPTICAL GOODS.




Diamonds, Sterling and Silver-Plated Flat and Hollow Ware, Clocks, Tools, Watch Materials, Spectacles, Eye-Glasses, Lenses, Trial Sets, Opera and Field Glasses, Opticians' and Jewelers' Sundries.
We handle everything pertaining to the jewelry and optical trades. We are direct **IMPORTERS** of **SWISS WATCHES** and **MOVEMENTS.**
If you want to save money, send us your orders Our illustrated Catalogue mailed free on application.
178 & 180 E. Madison St., CHICAGO, ILL.

# Mighty Men O' The Hammer

HERMAN G. BRIGGS

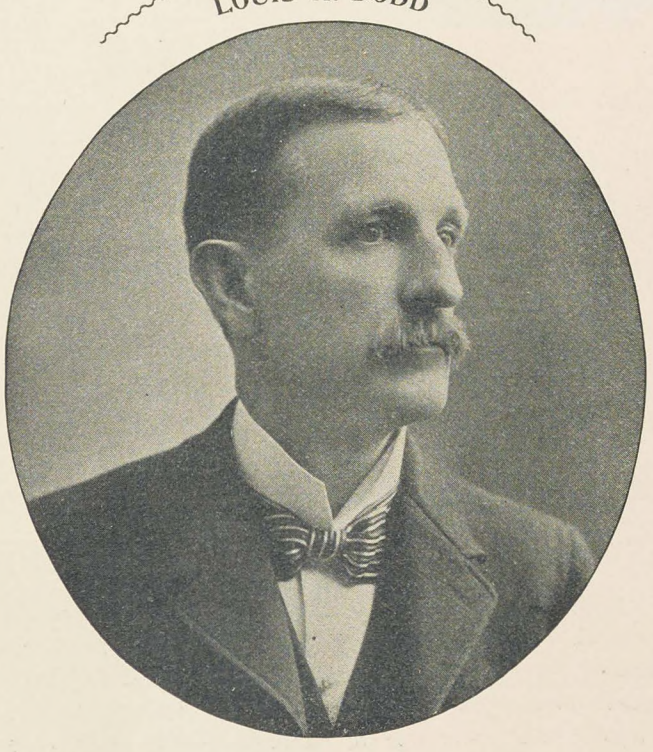


"The best and most gentlemanly auctioneer in America."
—*Chicago Times-Herald.*

### America's Record Breakers.

Without a doubt the sale which we are now conducting of the $300,000 A. M. Hill stock, of New Orleans, is the largest and most successful from every point of view ever made in this country. See his letter in next issue of THE KEYSTONE.

LOUIS H. DODD



"Without a doubt the most rapid salesman in the country."
—*Daily Picayune, New Orleans.*

## To the Jewelry Trade

We beg leave to make the extraordinary announcement that we have formed a permanent partnership for the purpose of conducting jewelry and art sales. We know that in the collocation of our interests we are enabled to give the dealer greater advantages than ever enjoyed heretofore. Both of us have enjoyed the unstinted patronage of jewelers in conducting strictly legitimate sales for nearly twenty years, which proves conclusively that our ability is recognized. Jointly, we are enabled to give hundreds of references of unparalelled successful sales, extending from the gulf to the lakes, and from ocean to ocean. Such as are, in fact, incomparable with the record of any other auctioneers. This roll of honor and merit will be published in a near issue of THE KEYSTONE, or sent on application. The trade can not fail to recognize the great benefit of obtaining the services of two experienced men at the cost of one. The audience never gets tired; each has his own methods, and there is a change of voice and manner; also in case of sickness, it is an invincible argument. We work in perfect harmony, and it makes a degree of success in sales never before known. We will prove that it is the greatest combination of talent ever available.

## BRIGGS AND DODD,

334 Dearborn St., Room 1230,

CHICAGO, ILL.

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***Notice.***

We have no connection with other auctioneers, and any one using our names to procure sales will be prosecuted.

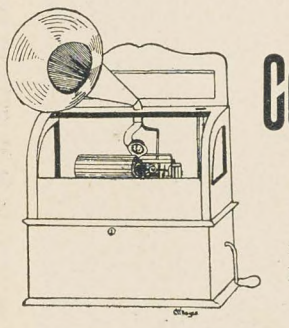
# SIGNS SIGNS

I make the largest and most perfect watch signs in the world. With or without illuminated dials. They are the latest improved, and have advantages superior to all others. They are as perfect in proportion as a watch case, and also very beautifully and artistically designed. They are made of heavy sheet zinc, painted with white lead and gilded with the best XX gold leaf, and warranted in every particular. These signs can be placed on a post, and are so constructed as to revolve, or they can swing on a rod from a building. I make different sizes. Weight of signs varies from twelve to eighty pounds. The best advertisement for your place of business is one of these elegant signs. They are sure to attract attention, and always prove a paying investment. Price-list and photos. furnished on application. Address

**Lon Barnhart,**

**717 W. Madison St., Chicago, Ill.**

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*THE LATEST*

## Coin-in-the-Slot Graphophone

**ONLY $16.00 NET.**

Lowest-priced and best Coin-in-the Slot Talking Machine made. On an investment of $16.00 you can make $2.00 per day.

Eagle Graphophone, . . . $7.00 net.
" " (with case), 8.25 "

***Genuine Original Records for the Phonograph and Graphophone, 50 cents each.*** Compare one of our Original Records with the worthless duplicates you are now using, and note the difference. On receipt of **50 cents** we will mail you one Original Record, postage paid.

Write for dealers' discount on Records and supplies.

**D. E. BOSWELL CO.,**

83-87 Dearborn St., CHICAGO, ILL.

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*AMERICA'S PREMIER AUCTIONEER*

## *CHAS. E. MANOR*

1016 & 1018 Main Street KANSAS CITY, MO.

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J. E. SHELL E. M. HARRISON

SHELL & HARRISON
JEWELERS AND OPTICIANS
40 SOUTH TRYON STREET

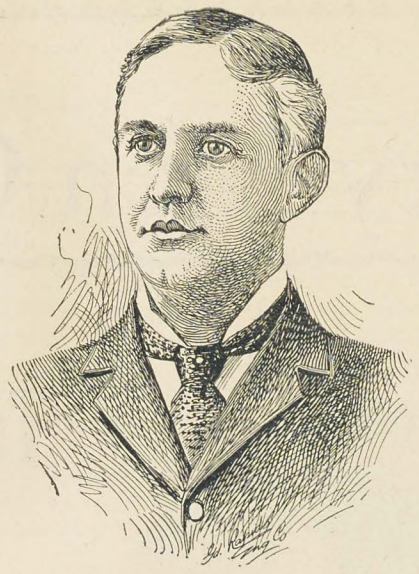
CHARLOTTE, N. C., February 15, 1898.

TO WHOM IT MAY CONCERN;

I take great pleasure in recommending Mr. Chas. E. Manor, of Kansas City, Mo., who has just finished a sale for me, and in spite of the hard times has realized better prices than I had anticipated. His manner of conducting a sale is gentlemanly and courteous, and the citizens of Charlotte are unanimous in their praises of him as an entertainer and salesman. Parties contemplating having an auction will make no mistake in employing Mr. Manor, as he is thoroughly competent to handle the very highest class goods. My stock consisted mainly of cut glass, solid gold and sterling silverware, and these goods he sold to our very best citizens at prices that were pleasing to me. Should I ever hold another sale, I certainly would endeavor to employ Mr. Manor to conduct it. Would be pleased to answer any and all communications from Jewelers in reference to his ability, etc.

Very truly, JNO. E. SHELL,
BELL & DIXON, Assignees.

---



# THE JEWELERS' AUCTIONEER.

The only jewelers' auctioneer who is an expert in Art Chinas, Bronzes, Books, Cut Glass, Fine Art Goods, etc., as well as in all jewelry lines.

If "every dollar counts," you need an expert; if you've "money to burn," 'tother fellow will do.

**(The Greatest Jewelry Auction Ever Held in Texas.)**

We selected Mr. Triplett to make our sale, with the following results: Other jewelry auctions were running at the same time in Dallas, Galveston, etc., the sales being very light and goods bringing from forty to fifty cents on the dollar, so traveling men informed us. Our sale was a success from start to finish, *Mr. Triplett netting us good profits on everything*, especially on art chinas, cut glass, bronzes, fine umbrellas, etc. We attribute this success to Mr. Triplett's ability to draw and hold fine audiences, his thorough knowledge of jewelry and all its allied lines, and his splendid descriptions of goods. We cordially recommend him to any dealer needing a first-class auctioneer.—I. STEIN & Co., Austin, Texas.

There may be as clever entertainers and as fine salesmen as Mr. Triplett—though I doubt it. There can't be any better. *He got me profits on everything*, varying from 25 per cent. to 150 per cent. Clocks I had had in my windows for months marked: "Only $4.00," he sold for $6.00 to $9.00; so of other goods. I shall be glad to answer any questions as to Mr. Triplett's ability, etc.—H. P. LORBACH, Circleville, Ohio.

The only person who ever succeeded in inducing the society ladies of our city to attend an auction. Mr. Triplett is a thorough gentleman, a witty entertainer, and a salesman without an equal. I can't recommend him too highly.—JOHN W. HOSKINS, Houston, Texas.

*See March KEYSTONE for other references.*

**Frank Triplett,** 1231 Harrison St., Kansas City, Mo.

---

# *To the Trade*

Office of
**J. MUHR & BROTHER,**
Manufacturers of
**CROWN Watch Cases,**
19th and Hamilton Sts.

*Philadelphia, March 28, 1898.*

*Gentlemen:*

*We have sold to Messrs.* **T. Zurbrugg & Co.** *our entire watch case plant, our entire stock of watch cases, finished and in the course of manufacture, together with all right and title to and interest in our trade-marks; also have transferred to them all accounts now due us and all merchandise at present consigned by us, all of which are subject to their order.*

*We take occasion to thank the trade for their generous treatment of us in the past; also to ask a continuance of its patronage for our successors, who, by reason of their ability, long experience, well-known integrity and reliability, will merit the fullest measure of success.*

*Respectfully yours,*

***J. Muhr & Bro.***

*Trusting that the trade will continue their patronage and assuring them of our earnest intention to deserve it, we beg to state that we have assumed all guarantees that have been made by J. Muhr & Bro., for Watch Cases, and that we shall maintain the high quality and reputation of the goods as heretofore made by them.*

**T. ZURBRUGG & CO.,**
*Successors to J. Muhr & Bro.*

## *Removal Notice.*

We desire to announce that about May 1st we will remove to our new and handsomely fitted store on the second floor of the **New England Building, 129 to 131 Euclid Ave.,** where we hope to welcome our old friends and the trade in general.

**The Bowler & Burdick Co.,**
CLEVELAND, OHIO,
*Importers and Jobbers of Diamonds, Watches, Jewelry and Materials.*
*REPAIRS FOR THE TRADE.*

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## Photographs on Watch Dials and Caps.



Single or group pictures.

*A Beautiful Gold Embossed Sample Card and Price-List* sent free to jewelers on application.

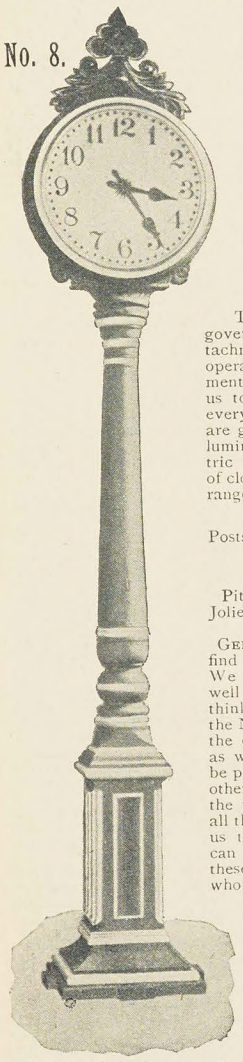
Price same as ever, **$1.**

**The Elmore Co., 115 Dearborn St., Chicago.**

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## SIGN CLOCKS

No. 8.



which keep accurate time,

**Not Dummies,**

are what we manufacture. Our clocks are in use for over two years, and have earned their reputation as handsome, useful and durable signs.

Three cells of battery, governed by a simple attachment on your regulator, operate them. Improvements recently made enable us to guarantee them in every particular. The dials are ground glass and are illuminated at night by electric lights within. Prices of clocks for bracket or post range from

**$40.00 up.**

Posts of wood or iron from

**$15.00 up.**

Pittsburg, Pa., Mar. 9,'98.
Joliet Elec. Mfg. Co.,
Joliet, Ill.

GENTS.:—Enclosed please find check for No. 5 Clock. We must say we are very well pleased with same, and think it much prettier than the No. 1 which we got for the other store. If it does as well as that one, we will be perfectly satisfied. The other has been running for the past two years, and in all that time has not given us the least trouble. We can cheerfully recommend these clocks to any jeweler who wants a substantial, handsome street clock, and one that any kind of weather does not affect.

DE ROY & SONS,
317 Smithfield St.

*Write for Catalogue.*

**Joliet Electrical Mfg. Co.**
JOLIET, ILL.
Chicago Office—Room 509, 126 State St.

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## CLOCK HAIRSPRINGS

MANROSS
ESTABLISHED 1877.
LARGEST M'F'R OF HAIRSPRINGS IN U.S.

THE CLOCK REPAIRER'S ASSORTMENT CABINETS contain 50 or 100 finished hairsprings complete, all sizes and makes, carefully arranged, full directions. Cabinet of 50, $1.00; 100, $1.75, by mail. Same springs, any size or make, 30 cts. per doz., 20 cts. per half doz. Steam Gauge Hairsprings of every description. Phosphor Bronze Hairsprings for Electrical Instruments, etc.
Ask your Jobber for these Cabinets.

F. N. MANROSS, Forestville, Conn.

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**COLLINS & FLETCHER,**
Attorneys, 713 100 Washington St.

STATE OF ILLINOIS, COUNTY OF COOK, SS.—In the Circuit Court of Cook County. In Chancery. William H. Gleason vs. Charles H. Knights. Gen. No. 183,427. Term No. 12,810. To whom it may concern:

Notice is hereby given that the undersigned, Homer B. Galpin, was by an order entered in the above entitled cause on the 18th day of April, 1898, appointed receiver of all the partnership property, assets and effects, real, personal and mixed, of every name, nature and description, wheresoever situate, of the copartnership composed of William H. Gleason and C. H. Knights, and doing businessas C. H. Knights & Company.

Notice is also hereby given to all creditors of the said copartnership of C. H. Knights & Company that by an order entered in such cause on April 19th, 1898, such creditors are required to file and prove up within thirty days from April 19th, 1898, before George Bass, a master in chancery of the above entitled court, at his office, suite No. 109, in the Hartford Building, No. 140 Dearborn Street, in the city of Chicago and State of Illinois, their respective accounts and demands against the said copartnership.

Any creditor failing to file and prove up his claim as aforesaid within the time limited, shall be debarred from sharing in the assets of said estate.

HOMER B. GALPIN, Receiver.

COLLINS & FLETCHER,
Solicitors for Receiver.

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## *GOLD*

*and Silver effects artistically produced by*

**J. J. DONNELLY,**
ELECTRO PLATER,
73 Nassau Street, New York City.

PRICE-LIST ON APPLICATION.

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## Klondike or any other Old Gold.




The highest price paid in cash for all kinds of gold, silver and platinum, sweeps, filings, brushings, polishings, gilders rags, gilders solutions, or anything containing gold and silver.

Estimates made if desired, and if not satisfactory, goods returned at our expense.

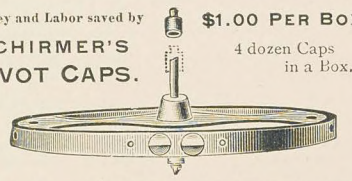
**T. B. HAGSTOZ CO., Limited,**
*Smelters, Refiners and Assayers,*
709 Sansom St., Philadelphia, Pa.

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Money and Labor saved by

**SCHIRMER'S PIVOT CAPS.**

**$1.00 PER BOX.**
4 dozen Caps in a Box.



These Caps will fit the staffs of any wheel in any watch.
FOR SALE BY ALL JOBBERS.

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AWARDS FOR

## H. H. Heinrich's Marine Chronometers.

CHICAGO, 1893 PARIS, 1889 BERNE, 1859




A large stock of new and second-hand CHRONOMETERS always on hand to rent or for sale at moderate prices; rent to apply on purchase. My second-hand Chronometers are made up equal to new, and adjusted to the average rate of **5 to 10 seconds per month.** Special terms to suit convenience of customer.

☞ Repairing, springing and re-adjusting Chronometers and Fine Watches for the trade.

**H. H. Heinrich,**
102 Fulton St., Rooms 503-4, NEW YORK.

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**Try the ELECTRIC SHELLS for Ring Polishing and Finishing.**

**LEATHER or CHAMOIS,**
40c. per set of 6 shells and wooden mandrel.
**FELT,**
50c. per set of 10 shells and wooden mandrel.
**CANTON FLANNEL,**
30c. per set of 10 shells and wooden mandrel.
**CARBORUNDRUM CLOTH,**
35c., assorted grits, 10 shells and wooden mandrel.
**EMERY CLOTH,**
30c., assorted grits, 10 shells and wooden mandrel.
**CROCUS CLOTH,**
30c., assorted grits, 10 shells and wooden mandrel.
**EMERY PAPER,**
15c., any grit, 10 shells and wooden mandrel.

**The New Bedford Watch and Clock Oil, best ever produced, at $2.00 per dozen.**

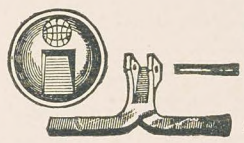
**Hobbs Bros.,** Trade Watchmakers, Material, Tools, etc.,
MOONEY BUILDING, BUFFALO, N. Y.

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## THE BEST is THE CHEAPEST after all.

THE only secure and simple arrangement for Interchangeable Stone Initial and Emblem Rings. Made in all desirable styles.





**Globe Lever**
BUTTON BACK.
Post can be attached to any button.
"It has no peer"

CATALOGUE SENT ON APPLICATION.

***J. BULOVA,***
57 MAIDEN LANE, NEW YORK.

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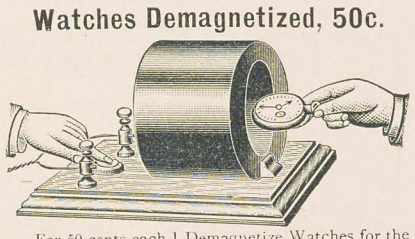
## TO INCREASE YOUR REPAIR TRADE.

Buy the roughed-out and outlined parts for one of my **Paragon Lever Escapement Models,** and finish it up and place it in your show-window. They convey an idea of high mechanical skill. Write for descriptive circular. To insure answer, enclose two-cent stamp. Address

M. MACKELLAR,
P. O. Box 2674, Philadelphia, Pa.

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## Watches Demagnetized, 50c.



For 50 cents each I Demagnetize Watches for the Trade, returning them same day. Cash must accompany watch. Buy **Stumpf's Royal Demagnetizer,** and do your own demagnetizing. **Price, $7.50 Net.** Sent C. O. D., subject to ten days' trial. In ordering, give system of light, voltage and socket in use.

**GEORGE R. STUMPF,**
525 Franklin Ave., ST. LOUIS, MO.

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*The Souvenir Spoon Engraver.*




**Chas. A. Stahl, Jr.**
Providence, R. I.
Best and cheapest.
Send for price-list.

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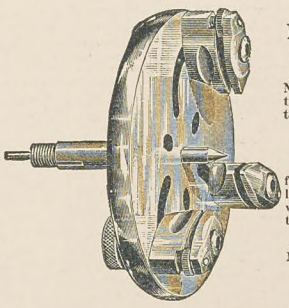
U. S. Pat. Oct. 20, 1896. Canada Pat. 1897



**Wells' Perfect Self Conforming and Ventilating Ring Adjuster** is the result of many years' experience. It does not wear or injure the ring, cannot spring up or lose out, yet it may be removed instantly; it can be fitted in three minutes. If your ring goes over the joint hard, this Adjuster can be taken off or replaced very easily while the ring is on the finger. Ask your jobber for it, or I will send on receipt of price, **1 dozen, assorted sizes, solid 10 K. gold, $3.75 net. 1 dozen, metal, assorted sizes, 85c. net.** (8c. extra if registered.) Retail price, fitted, metal, 25c. each; gold, 50c. to $1.00 each, according to size required. Address,

**CHESTER H. WELLS, Jeweler, Meshoppen, Pa.**

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Price Reduced to
**$8.00**
No cheap imported imitation, but the genuine
**Houghton Face-Plate**
for $8.00. Excellent finish, and warranted to run true. See that
J. HOUGHTON. Manchester, N.H.
is stamped on them.

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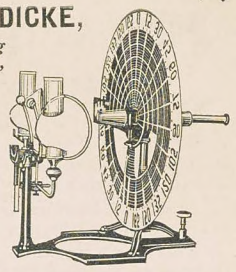
JEWELERS', PLATERS',
WATCH CASE MAKERS'
AND SPECIAL

## BRUSHES

MANUFACTURED BY
**EDWARD E. GNICHTEL,**
15 TO 19 GREEN ST.,
NEWARK, N.J.

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**FOX & STENDICKE,**
*Manufacturing Opticians,*
*61 Fulton St., New York.*



☞ Javal, Schiötz Ophthalmometers, Phorometers, Skiascopic Apparatus, etc., etc.

**Send for Price List**

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# Watch Repairing for The Trade

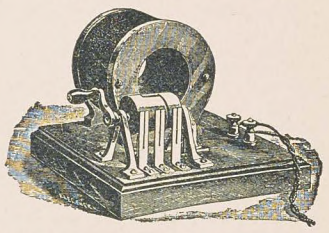
**LOW PRICES AND PROMPT ATTENTION.**

ALL WORK GUARANTEED.
PRICE-LIST UPON REQUEST.

***C. Culman,***
*Globe-Democrat Building,*
*ST. LOUIS.*

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**THE BERLIN**



**WATCH DEMAGNETIZER**
Is the Cheapest and Best. Price, $6.50.

**ELECTRIC ALARM**
for early rising. $1.00.
Can be used with any Alarm Clock.

***J. JONES & SON,***
67 Cortlandt Street, NEW YORK CITY.

---

**MONEY AND TIME SAVED**
by sending your
**WATCH WORK**
to
**OLOF PEARSON,**

**EXPERT WATCHMAKER FOR THE TRADE.**
Fine Watch Repairing. My charge for Demagnetizing Watches is 50 cents. Give me a trial on this kind of work. All kinds of Wheels Cut to Order.
**Mail Orders promptly attended to.**
Room 1313 Columbus Memorial Building, CHICAGO.
GOOD WORK AND LOW PRICES.

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**G. F. Wadsworth,**
**Watch Case Manufacturer** and **Repairer.**

Everything in the line of
**Watch Case Repairing, Gold and Silver Plating, Satin Finish, Engraving** and **Engine Turning**

Changing Old English and Swiss Cases to take American S. W. Movements my specialty.

OLD CASES MADE NEW.

**Silversmiths' Building, 131-137 Wabash Ave., CHICAGO.**

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Display advers., $2.50 per inch per column.
Smallest adver. inserted, one inch.

# Small Advertisements

**No advertisement inserted for less than 25 cents.**

**Under heading "Situations Wanted," ONE CENT per word for first twenty-five words. Additional words and advertisements, THREE CENTS per word.**

**Under all headings except "Situations Wanted," THREE CENTS per word.**

**Name, address, initials and abbreviations count as words.**

**If answers are to be forwarded, postage stamps must be enclosed.**

**To insure insertion money must accompany all orders for advertisements, and copy must reach us not later than the 25th of each month for insertion in the following month's issue.**

**The real name and address of every advertiser must accompany the copy of the advertisement.**

**Advertisers who are not subscribers must send 15 cents if they desire a copy of the paper in which their advertisement appears.**

**Address,**

**THE KEYSTONE,**

**19th & Brown Streets, Philadelphia, Pa.**

## SITUATIONS WANTED.

**Under this heading, ONE CENT per word, for first twenty-five words. Additional words and advertisements, THREE CENTS per word. No advertisement inserted for less than 25 cents.**

POSITION as watch and clock repairer near Philadelphia. Ref. to character. Location preferred to wages. Address, "H 97," care Keystone office.

BY young man, 17 years old, of good address, to learn the watchmaking and jewelry business. Have some exp. waiting on trade. Best of refs., no bad habits. Address, Chas. A Irwin, McConnellsburg, Pa.

BY a young man. Can take full charge of watch-work and jobbing; also good salesman. Sober and reliable. "S 103," care Keystone office.

FIRST-class watchmaker, plain engraver, clocks and jewelry repairer; own tools. Speak English and German. Single, no bad habits; age 25. Competent to take charge of watch repairing. 4 years with former employer. Geo. W. Kleimer, Tremont Hotel, Duluth, Minn.

BY a competent young lady watchmaker in good establishment; moderate salary. Own tools, first-class ref. Ad., Fannie M. Barron, Hudson, Ohio.

BY young man, have worked at jeweler's trade 9 months, and want to take up engraving altogether. Write me, and I will send sample of work and tell just what I want. Best ref. S. A. Weaner, Northville, N. Y.

BY a first-class watchmaker with reliable firm. Best of ref. given and expected. Address, "W 65," care Keystone office.

AS watchmaker and jeweler, 7 years' exp.; good salesman, strictly temperate, best of ref. Moderate wages. Ad., "H 100," care Keystone office.

AT liberty August 1st. First-class salesman and bookkeeper; will work at bench to finish trade when not otherwise engaged. Gilt edge refs. Might arrange to leave earlier. Address, "H 101," care Keystone office.

BY young man to finish trade. Can do job, clock and plain watch work. Have tools, best of refs. Address, P. T. Egeleston, Pulteney, N. Y.

BY good, all-around watchmaker, long exp., good habits. Thoroughly understands the business in all its branches. Moderate wages only expected. Box 89, Troy, Mo.

WATCHMAKER, clock and jewelry repairer. Single man, 12 years' exp., German-American. Have tools and Webster-Whitcomb lathe. Address, 519 North Street, Sidney, Ohio.

BY good watchmaker, jeweler and graduate optician. Own tools, 5 years' exp, no bad habits. Can give good refs. E. H. Beatty, Blooming Prairie, Minnesota.

FIRST-class watchmaker, engraver and salesman, 12 years' exp.; American, single. "H 99," care Keystone office.

YOUNG man, 19, 3½ years' exp. Can do watch, clock, jewelry repairing, fair engraver; best ref. Ad., Charles Schneider, Box 418, Wapakoneta, Ohio.

AS watchmaker, young man, can also do clock and jewelry repairing. Have good set of tools, good ref. Will work cheap to begin on. Address, E. J. Parrott, Coon Rapids, Iowa.

AS traveling salesman: best refs. Silver line pref. I. T. Pearce, Wichita, Kan.

BY young married man, 29 years old, to take charge of jewelry and optical business. German, best refs. Address, "C 52," care Keystone office.

BY watchmaker, strictly first-class in every particular. Good salesman, engrave some. Sober and steady; unquestionable refs. "Watchmaker," 940 W. Madison Street, Chicago, Ill.

FIRST-class watch, clock and jewelry repairer wants position. Have complete set of tools, 12 years' exp., A1 ref. Address, J. Rems, 1430 Turner Street, Allentown, Pa.

FIRST-class watch repairer, engraver, jeweler; steady situation. No bad habits. Capable taking charge of benchwork; good salesman, 20 years' exp. All tools. "K 51," care Keystone office.

WATCHMAKER, refractionist and plain engraver, 9 years' exp. Good refs. Photo. and samples of engraving sent on application. Walter T. Poile, Chatham, Ontario, Canada.

GERMAN watch and French clock repairer wishes to change. Do hard-soldering; good refs., with 9 years' exp. "Jeweler," box 1842, Holland, Mich.

BY young man as watchmaker, had 6 years' exp.; also salesman. Address, "Jeweler," 125 South Main St., Cheney, Kan.

## SITUATIONS WANTED.

FIRST-class watchmaker, optician, jeweler and salesman. Owns lathe and tools; 14 years' exp.; all-around man. New England pref. "W. M.," P. O. Box 564, Springfield, Mass.

SOBER, industrious first-class watchmaker, jeweler; position at once. 8 years' exp. Own tools. Competent to take charge. Best refs. State particulars. "X," Box 502, Madison, Ohio.

BY first-class watchmaker and jeweler of over 15 years' exp. Have American lathe and good set of tools and A1 refs. Ad., "P 44," care Keystone.

BY young man as first-class letter and monogram engraver. Will act as salesman. Single, best ref. Address, Box 232, Cortland, Ohio.

AS watchmaker, jeweler and engraver, 8 years' exp. Good salesman. Recommendations from last employer and others. Single, age 25; tools and bench. P. O. Box 31, Deep River, Ind.

IN New England by a first-class watchmaker, jeweler and optician, competent to buy, sell or take charge of store. Best of refs. Box 436, Springfield, Vt.

BY young man of 4 years' exp., as assistant or to finish trade. Speak Scandinavian and some German. Good salesman, good ref. Address, C. Andersen, Grand Forks, N. Dak.

IF you want a strictly first-class watchmaker, expert optician, good plain engraver, diamond-setter and salesman. Complete set tools, best refs., 12 years' exp. Iowa or adjoining States pref. State salary. "J. H. L.," 624 S. Lucas St., Iowa City, Iowa.

YOUNG man, good habits, good jeweler and clock repairer, does watch work and plain engraving, 7 years' exp. A1 ref. "J 19," care Keystone office.

BY watchmaker, jeweler and plain engraver. Single man. Good ref. Ad., "W 63," care Keystone.

YOUNG man, age 28, married, would like permanent position in some good jewelry store. Good watchmaker and fair engraver; good all-around man. Can give best of ref. State salary when writing. Address, W. R. Marshall, Golden City, Mo.

SALESMAN, engraver and watchmaker. Young man, 27 years old, American, speak English and German. Have good ref. and exp. Address, 1929 Vliet Street, Milwaukee, Wis.

WATCHMAKER, engraver, graduate optician, jeweler, salesman, wants position. Age 35, 10 years' exp., married, good ref. East pref. Tools and trial-case. Box 357, Selinsgrove, Pa.

A1 WATCHMAKER and registered pharmacist, 7 years' exp. at bench and 4 years in drugs. Good salesman, plain engraver; single, 24. Gild-edge refs. Own tools. L. M. Tebbel, care C. E. Henney, McComb, Ohio.

AS jeweler and optician. Can cut, grind and set lenses; shape frames. Acquainted with wholesale trade; good salesman. Can take charge of jewelry or optical business. Married. At present with wholesale optical company. If you want a good man, write W. B. X., 500 Second Street, Peoria, Ill.

JEWELER, clock and watch workman, salesman, coloring, alloying, stone-setting; 16 years' exp. Responsible business man; age 30. Refs. Address, "Mutual," 2924 Ridge Ave., Philadelphia.

GENTLEMAN, American, good appearing, A1 refs., long exp. with large stores as watchmaker, engraver and salesman. $60 per month. "M 75," care Keystone office.

BY first-class watchmaker and jobber. Have had exp. in railroad watch inspection. Can furnish A1 ref. as to character, ability, etc. Will work for reasonable salary. "B 133," care Keystone office.

EXPERT watchmaker, engraver, 18 years' exp., A1 refs. for ability, honesty, etc. Address, "Watchmaker," care I. McDonald, 125 Concord St., Brooklyn, N. Y.

YOUNG man, 7 years' exp., lathe, tools. Good habits, best of refs. Or will take charge of stock for repairing. Address, Box 253, Winterset, Iowa.

BY strictly reliable watch repairer and engraver, first-class in both branches. New York State pref. State salary. Ad., "B 132," care Keystone.

YOUNG man, fair watchmaker and engraver, A1 on jewelry, hard-soldering, etc.; 2 years with mfg. jeweler. $10 per week. Ad., "S 104," care Keystone.

BY a graduate watchmaker, optician and letter engraver; also store exp. Good ref. W. E. Bennett, Winterset, Iowa.

A PRACTICAL watchmaker and optician desires a responsible position in large Western town or city. Address, P. Ruggles, 6237 Greenwood Ave., Chicago.

BY watchmaker, clock and jewelry repairer. Steady, sober and industrious. Moderate wages. Reliable refs. Ad., "Kansas 7," care Keystone.

WATCHMAKER and engraver, years of practical exp., position with some large firm. Best of refs. Address, W. Miller, 5145 Prairie Avenue, Chicago, Ill

A THOROUGH, competent watchmaker open for engagement with some first-class firm. Correspondence solicited. For further particulars address, E. W. H., 1094 Fourth Ave., Detroit, Mich.

BY A1 optician and refractionist, optical store or to manage optical business in first-class jewelry store. 15 years' exp. in jewelry and optical business. "T," 602 Ninth St., N. W., Washington, D. C.

BY watchmaker and engraver, competent and thorough workman eminently fitted to take charge of repair department. Finest refs. Salary, $18 per week. Address, "Omaha 9," care Keystone.

WATCH, clock and jewelry repairer, own tools, desires position at bench or as salesman. Lately employed by one of the leading jewelers in Philadelphia. "W 62," care Keystone office.

BY strictly competent watchmaker and engraver of good, general exp. in store. Finest refs. Salary, $16 per week. Address, "Iowa 9," care Keystone.

AT once, as watchmaker. Good refs., 7 years' exp. Full set of tools. E. T. Black, care Mrs. Ding's hotel, Winsted, Conn.

BY young man, single, German-American, jeweler, fair engraver, 8 years' exp. All-around man, does melting, alloying, oxidizing, gold and silver-plating; also clock work. Fine refs. A. Wegener, 1643 W. Twelfth Street, Chicago, Ill.

YOUNG man of 26, married, wants a position as watchmaker, jeweler and engraver. Can give good ref. F. A. Tomlinson, Danville, Ind.

## SITUATIONS WANTED.

BY first-class engraver and assistant watchmaker. Young American, with good refs. Address, "H. M. S.," Room, 1012 Champlain Building, Chicago.

AFTER twenty years in the retail business, have closed out my business. I want to engage my services on the road with some good house. Would prefer the Western States. A 1 references. Can file bond for any amount if required. Correspondence solicited. Address, Fred. Pell, Worthington, Ind.

AT once. American, single, age 25, as assistant watchmaker. Own tools; refs. O. K. Wages, $12. Hustler. Ad., "B 134," care Keystone office.

## HELP WANTED.

**UNDER THIS HEADING THREE CENTS PER WORD.**

BY a New York optical house, a young man to select parts for prescription work and be able to inspect. Practical man pref. Address, "F 42," care Keystone office.

A FIRST-class, all-around optician and grinder. Must be able to do the best of all kinds of work. Steady work for the right man. Address, "G 53," care Keystone office.

SALESMAN wanted by a New York optical house to travel in the New England States and New York. Must be thoroughly posted. Ad., "S 100," care Keystone office.

TRAVELING salesman, visiting jewelry trade, to carry silver-plated hollow ware on commission. Address, giving refs., "Q 2," care Keystone office.

FIRST-class jewelry salesman with an established trade, to call on department and large clothing stores, to travel principally in Ohio and Indiana. Inexperienced men need not apply. Ref. Address, H. Seligman & Co., Cincinnati, Ohio.

COMPETENT man for all-around optical work in prescription department. Address, "K 50," care Keystone office.

WATCHMAKER, optician, engraver, salesman and jewelry repairer. "P 51," care Keystone.

A MAN of exp. on French clocks and English chimes. Must also do ordinary watch work and wait on store. None but good men need apply. Steady work. Town about 8000 people. "K 53," care Keystone office.

GOOD watchmaker, jeweler and engraver; salesman pref. Address, Beilenson, 2154 Third Ave., New York City.

$25 PER week. Watchmaker, engraver, jewelry repairer, one who can do diamond-setting and has a thorough knowledge of optics preferred. Must be first-class on chronographs and all kinds of watch work, monograms and fancy lettering. Send refs., photo. and samples engraving. Permanent position. State whether married or single. Address, "G 54," care Keystone office.

FIRST-class watchmaker, jeweler and engraver, one not afraid of work and up-to-date in his business. None others need apply. Salary, $85 per month. John A. Black, Tucson, Arizona.

## WANTED.

**UNDER THIS HEADING THREE CENTS PER WORD.**

EVERY kind of gold and silverware, jewelry, watches, platinum. Market value paid. Sent by express or registered mail. Price not satisfactory, I will return all articles. J. L. Clark, refiner and sweepsmelter of gold and silver (established 1870), 724 Filbert Street, Philadelphia.

GOOD opening for jewelry store. Would buy one-half of business, with privilege of taking other half later. Refs. "H 93," care Keystone office.

WANT to buy a good stock of jewelry well located. Address, "H 245," care Keystone office.

TO buy established jewelry business. F. Riplinger, 115 S. Fourth St., St. Joseph, Mo.

WATCHMAKER'S wire screen; give description and price. J. L. Field, jeweler, Pittsfield, Ill.

GRANDFATHER clock, cheap. J. W. Clay Glotfelty, Lanark, Ill.

LOT of new Elgin and Waltham watches for cash. Liberal discount required. Box 143, Minot, N. Dak

SECOND-hand jeweling caliper with lateral screw for No. 2 or No. 3 Moseley; also Ben. Franklin plating dynamo. Address, "H 98," care Keystone.

TO buy second-hand De Zeng refractometer, also set of 1½-inch oculist's trial-lenses. Address, 212 E. John St., Chattanooga, Tenn.

"PEARLS and Pearling Life," by Edward W. Streeter. Will pay cash. W. W. Mayer, Mt. Pulaski, Ill.

GRANDFATHER clocks, description and photo. J. Smith, 212 Woodland Avenue, Syracuse, N. Y.

TO buy an ophthalmometer and De Zeng refractometer, '98 model. Will pay spot cash, but price must be low. Ad., Lock Box 130, Eugene, Ore.

JEWELERY stock wanted for spot cash. Quick action. Strictly confidential. Address L. Spiro, 96 E. Van Buren Street, Chicago, Ill.

WANT to buy first-class drug, jewelry and optical business, in good sized city within 200 or 300 miles of Chicago. Address, "L 56," care Keystone office.

WANT to buy and trade for a good jewelry store with good stock and good location. The store must have a good reputation. I want a stock and fixtures of about $12,000 to $15,000 in northern Illinois and Indiana, in a city of from 12,000 to 30,000. I will trade for such a store a fine farm of 160 acres, putting same at cash value, and will give the rest in money. The farm is one of the best in the county; will improve, and in fine cultivation. Free of any debt. Ad., "W 67," care Keystone.

WANT to trade land or lots for jewelry stock. Address H 246, care Keystone office.

## FOR SALE.

**UNDER THIS HEADING THREE CENTS PER WORD.**

JEWELRY store in one of the best mfg. towns in the State of Pa. Population 30,000. County seat; $60,000 paid out to labor every Saturday. Stock will invoice about $3000. Poor health cause of sale. Address No. 77 Pittsburg St., New Castle, Pa.

## FOR SALE.

BEST location in a city of 40,000 pop. Am watch inspector for large division of railroad. Stock and fixtures invoice about $3500. Must be sold on account of death of an interested one. Any one with the cash can get large discounts. "L 46," care Keystone office.

OLDEST jewelry store in Oshkosh, 20 years on best corner in city. Owner will retire. Stock and fixtures $25,000. Can easily be reduced one-half. The business is a gold mine. This is a rare chance for parties with $10,000 to $15,000 cash. Address, Wm. J. Kelly, Oshkosh, Wis.

CHEAP for cash, jewelry store in central Wisconsin. Jewelry and fixtures. Population 6500. Box 366, Marshfield, Wis.

I HAVE 2 stores for over 6 years, and I wish to sell one. One at Bay Shore, L. I., the other at Babylon, L. I. The fixtures and good will Bay Shore $300, the business is only summer trade; Babylon $200, is an all-the-year business. D. Jaffin.

FINE climate, good class of trade, large run of bench-work, one of the best towns in the Willamette Valley, 5000 pop. First-class stand and rent reasonable are the inducements I have to offer a purchaser of my store fixtures and a small part of the stock. Address, Lock Box 130, Eugene, Oregon.

$1500 WILL buy a well-paying optical business in manufacturing city, healthy location, good trade—10 years established; fine fixtures. A great bargain. Address, "H 94," care Keystone.

WISHING to retire, will sell good, paying jewelry, optical business. Leading store in best jewelry town, 7500; county seat. Excellent farming community. Stock, fixtures invoice $2200. Liberal cash discount. Elegant oak fixtures. Splendid opening for some one. Ad. "S 105," care Keystone.

$600 WILL buy stock and fixtures of a well-established jewelry and optical business in a Massachusetts town of 9000. A snap for the right man. Address, Lock Box 536, Palmer, Mass.

ONLY jewelry stock in town of 500. Invoice about $1000. Will give liberal discount. Address, Richards & Crawford, Bristow, Iowa.

CHEAP—8 ebony wall cases, show-cases and counter tables to match 6 feet long, good as new; Burglar-proof safe. Photo. furnished on application. R. J. Riles, Jacksonville, Fla.

OLD-established jewelry and optical business; town of 20,000. Invoice $5000; will sell at a big discount. First-class opening. "V 8," care Keystone office.

JEWELRY business, best location in city. Good investment for $2000 to $4000. Will sell at actual value of stock and fixtures—at low valuation. Repairs more than pay all expenses. Address, J. C. Sheldon, Bridgeton, N. J.

SPLENDID talking parrots—1 African gray, 1 double yellowhead; grand specimens. Send stamp. A. C. Krueger, Strawberry St., Lancaster, Pa.

JEWELRY and optical business. W. S. Charles, Grayville, Ill.

BICYCLES.—100 new '97 and '98, taken on mortgage. While they last, $9 to $20. M. & W., Newton, India tires. Send for sample. J. A. Walker, 334 Dearborn Street, Chicago.

JEWELRY and optical store in city of 100,000 inhabitants. Will take partner, or give energetic man chance to start good business on small amount of capital. Wish to retire. Stock and fixtures invoice $7000. Address, with stamps, Box 833, Worcester, Mass.

BEN. Franklin plating dynamo, cost $25, sell for $15; Webster-Whitcomb lathe and 10 chucks, $30; face-plate and slide-rest, imitation, but finely made, $15; flat rolls, cost $35, sell $15; trial-case, Spencer, $80—case cheap. "K 52," care Keystone.

OLD-established business in county seat in prosperous Kansas. Jewelry and stationery $3000, part cash and balance easy terms. Want to retire. Fine schools, college, gas and water works, 3 railroads, division, good water, good health. "W 64," care Keystone office.

FOR cash or good security, nice jewelry stock, elegant cherry fixtures. A good, paying business. Stock invoices $3000. Located in central Iowa in county seat; largest stock in the county. Surrounded by the best farming country in the world. "N 17," care Keystone office.

JEWELRY store in central Wisconsin; best paying business in city of 6000 inhabitants. A rare chance; investigate this. "A 32," care Keystone.

SMALL stock of jewelry and fixtures worth $500. Resident population 2500; over 3000 students enrolled yearly in the Ohio Normal University—thickly settled country. Only 1 watchmaker in city. Head & Paul, Ada, Ohio.

RARE bargain in first-class jewelry store in good college town; pop. 4000. Invoice $6000. Can reduce to suit purchaser. Will pay to investigate. Address, "Jeweler," lock box 104, Waynesburg, Pa.

LEADING jewelry business in Oregon, established 18 years. Climate mild and healthy, opposition light, pop. 2500. Stock and fixtures will invoice between $4000 and $5000. Am watch inspector, have good location. Reason for selling, have business interests East. This is a rare opportunity to get good business if you have the cash. Apply "S 102," care Keystone office.

CHARLES Austin Bates' optical cuts. 12 single column cuts and his 12 ads. to match, $3. W. E. Huston, Greenfield, Ind.

AN established jewelry store of 11 years standing in a town of 5000 inhabitants in southern Illinois on the Ohio River, only one other store in town—no competition to speak of. Have worked my stock and fixtures down to $1200. Sales average $3000 a year, repair work averages $75 per month. Railroad and manufacturing town, the most healthy place to live in Illinois; no high water and very little winter. Good prices. Reason for selling, want to join party going to Alaska in May. Bargain for a cash buyer. Address, Fred. Pfaus, Metropolis, Ill.

THE business formerly carried on by Cutting & Wilson, at Winona, Minn. The stock and fixtures will invoice a little over $16,000. The stock must be sold. Correspondence solicited. H. F. Hahn, trustee for the creditors, 126 State St., Chicago.

CHEAP.—A jewelry store near New York at ⅔ of invoice. Stock can be reduced to $1500. Inquire G. Wilkens, No. 241 First Ave., New York.

1 NACHET trial-case, $30; 1 Berteling compound optometer, $40. Reed & Malcolm, Portland, Ore.

## FOR SALE.

SMALL jewelry business in good place. Time, with security. Box 238, Au Sable, Mich.

$50 BUYS No. 2 Webster-Whitcomb lathe, countershaft, chucks, Hall's staking-tool, engraving block, and other small tools such as extra chucks, tweezers, pliers, screw-drivers, brushes, etc. Everything in first-class condition. J. H. D., 414 Karbach Block, Omaha, Neb.

A NEW, 1898 model, De Zeng refractometer for sale. Address, Dr. F. C. Todd, Dayton Building, Minneapolis, Minn.

GENUINE B♭ concertois cornet, instantaneous change to A. A fine mute, all free from dents; silver-plated. To those meaning business write F. B. Blackmond, Dowagiac, Mich.

DE ZENG refractometer at sacrifice price; new instrument, best model. Going with National Guard to Cuba. Address, "National Guard," 163 Delaware Ave., Buffalo, N. Y.

ONLY manufacturing jewelry establishment in Colorado west of Denver, cheap. Business worth from $1800 to $2000 a year. Reasons for selling easily explained. P. O. Box 699, Telluride, Col.

GOOD, paying optical business in a city of 600,000 inhabitants. Good reasons for selling. "W 66," care Keystone office.

CHEAP—Leading jewelry business; investigate immediately. Kitzmiller, Waynesboro, Penna.

IN San Diego, Cal., a jewelry store established 16 years. Will sell without or with a 2-story, 25-foot front solid brick building on main business street; upper story containing six finely finished rooms. Rare chance for the right man—especially a watchmaker. Will keep part of stock to suit buyer. Good reason for selling. Do not write unless you mean business. Address, "A. Y.," care Keystone office.

GRAPHOPHONES, Eagle or Columbia make, new, 1898 models, with latest improvements; with or without electric motor. Choice of records. They make a splendid attraction in any retail jewelry store. Will be sold cheap for cash. "G 37," care Keystone office.

AT a bargain. Owing to declining health and old age I now offer my store and dwelling combined, including the lot in Ashland, Hanover County, Va., at the low price of $2500. The lot fronts 60 feet on Railroad Street, and extends back 168 feet to a wide alley, and is thickly set with choice fruit trees. The house is nearly new—was built 5 years ago—has 8 rooms and 4 closets besides the store room, all in good order. Ashland is the seat of Randolph Macon College, and is the handsomest town in the State. My business, for the last 28 years in Ashland, has been the repairing of clocks, watches, jewelry and spectacles. Ashland is the only town in the county, and I am the only jeweler in the county. Fine opening for a young, enterprising man. P. Vincent, clock and watchmaker, jeweler and optician, Ashland, Virginia.

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UNDER THIS HEADING THREE CENTS PER WORD.

GOOD engraving machine, lathe wheel, music-box, quantity burglar alarm bells. What have you? "Jeweler," 72 N. Main St., Providence, R. I.

WANT to trade cash and fine farm, 160 acres, nearly all in cultivation, for a paying jewelry store worth from $12,000 to $15,000 in city of 10,000 to 40,000 in northern Illinois or Indiana preferred. "A 31," care Keystone office.

ONE fine dwelling house and 3 farms, all clear of incumbrances, will exchange for good stock of jewelry, town property or merchandise. Lock Box 390, Worthington, Ind.

1-2 CARAT perfect white diamond stud to exchange for up-to-date Hardy or Javal ophthalmometer. Box 592, Salida, Colo.

1 EACH electric and spring motors, Edison phonographs to trade for watch movements and cases. Good as new. "R. M. T." Box 125, Caldwell, Kan.

NEW acetylene, 20-light gas generator and fittings all complete. Will exchange for diamonds, marine gasoline engine or fine hammerless shotgun. What have you? J. C. Meacham, Prescott, Wis.

WANT to trade land or lots for jewelry stock. Address, "H 246," care Keystone office.

WILL exchange new watchmaker's lathe, 13 chucks, for high-grade 4 x 5 camera, shot gun, or offers. Babbitt, Danvers, Mass.

FINGER-rings, jewelry, silver novelties in exchange for cash or old gold. Averbeck & Averbeck, manufacturers, New York.

MOSELEY lathe No. 2, hard; 28 chucks, adjustable countershaft, foot-wheel, face-plate, staking-tool and smaller tools cheap for cash, or exchange for American Optical Company's goods. H. C. Watts, 127 South Salina St., Syracuse, N. Y.

## SPECIAL NOTICES.

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WM. I. Rosenfeld, 19 Maiden Lane, New York, is offering some unusual bargains in discontinued movements and cases. Write for particulars.

ON receipt of 25 cents in stamps we will send to any address in the United States 100 hairsprings of different sizes and strengths, suitable for American clocks and watches. We have a large job lot of these springs, bought with the stock formerly owned by A. J. Logan. Address, Randall & Stickney, 21 Crescent Street, Waltham, Mass.

WATCH repairing for the trade; wheel-cutting or making of any new and difficult parts. Best work, moderate charges, prompt service. Ezra F. Bowman, manager, Lancaster, Pa.

ENGRAVING monograms, script and all styles of work in the highest style of the art. Ezra F. Bowman, manager, Lancaster, Pa.

SPECIAL diamond mountings. We furnish estimates and designs; charges reasonable. First-class work. Quick returns. Try us. Averbeck & Averbeck, manufacturers, New York.

IF you wantto sell your jewelry store, communicate with us. We buy for spot cash. Strictly confidential and on very short notice. Joe Brown Co., 96 E. Van Buren St, Chicago, Ill.

PARTY buying $300 to $500 stock can have as much more on consignment and run jewelry dept. in department store. "C 53," care Keystone office.

WATCH repairing, wheel-cutting, making any new part. We estimate free of charge for altering English keywind and fitting American stemmovements to same. Best work, moderate charges. Ezra F. Bowman, manager, Lancaster, Pa.

WE can furnish watchmakers, first-class workmen guaranteed, for what job can afford to pay. Watchmakers' Agency, 204 Superior Street, Albion, Michigan.

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UNDER THIS HEADING THREE CENTS PER WORD.

THE St. Louis Watchmaking School has the best facilities for teaching watchmaking, engraving, repairing, jewelry and optics. Terms reasonable. Write for circular.

THE best work for the least money at the Peoria Horological School, Peoria, Ill. No student work. See advertisement on page 326.

STUDENTS wishing to attend the St. Louis Watchmaking School should make application at once, as the number of students has been limited to only 25.

EVERYONE to know that Parsons' Horological Institute, Peoria, Ill., is the oldest and best in this country.

WHERE to receive the highest cash price for every kind of gold and silver. Refiner of sweeps, filings, brushings, polishings, everything containing gold and silver. Fine gold, silver, copper for sale. J. L. Clark (established 1870), 724 Filbert St., Phila., Pa. Send by mail or express; prompt attention given.

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IN order to teach students more thoroughly, the management of the St. Louis Watchmaking School has decided to reduce the number of students to only 25.

WHY not send me your watch cases that need repairing? Can replace any part of a case. G. F. Wadsworth, Silversmiths' Bldg., Chicago, Ill.

WANTED—all interested to send to the Peoria Horological School for circular. 1426 Main St., Peoria, Ill. Try our trade work. See adv. on page 326.

THE Elgin Horological School is still making competent workmen for the trade. Watch and jewelry repairing, engraving, etc., taught in a thoroughly practical manner. Terms to suit the hard times. Send for circulars to the Elgin Horological School, Elgin, Ill.

EVERYONE to know that Parsons' Horological Institute, Peoria, Ill., has all the latest improved, the largest assortment of tools and the best equipped school in this country.

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THOS. O HAYDOCK, watchmaker, 702 Chestnut Street, Philadelphia. Difficult and broken work a specialty. Pivots, 25 cents.

EVERYONE to send to Parsons' Horological Institute for catalogue of terms, etc. Peoria, Ill.

SEND for terms and prices at the Peoria Horological School. We guarantee perfect satisfaction, or money refunded.

SEND your work to Olof Pearson, expert watchmaker for the trade: fine watch repairing, demagnetizing, etc. Mail orders promptly attended to. Room 1313, Columbus Memorial Building, Chicago.

EVERY student in the South Bend College of Optics gets individual instruction. Every pupil gets personal attention. Every pupil goes just as fast as he is, able and no faster. See our ad., page 384, and send for our announcement

ARE you interested in optical work? Are you reading our talks in The Keystone? We have been talking to the jewelry and optical trades every month for the past 2 years. This month you will find us on page 384. We believe we can interest you. South Bend College of Optics, South Bend, Ind.

THE science of optics taught at home. We give you personal instruction by correspondence. We talk to you through a stenographer just as if you were right here with us. Every subject is explained to you. We make you a thorough and practical optician. Read our ad., page 384, and write us for particulars. South Bend College of Optics, South Bend, Ind.

AVERBECK & Averbeck, manufacturers, New York, are headquarters for solid gold finger rings and silver novelties. Write for catalogue.

JOE BROWN CO., 96 E. Van Buren St., Chicago, Ill. Jewelry stocks and stores bought and sold for spot cash. This means that we can sell anything in the jewelry line, or jewelers' fixtures, at an extremely low price. Our specialty consists of buying and selling second-hand watches, movements and cases, of which we, at amost any time, havela complete stock on hand. Our second-hand movements are in first-class condition, and are guaranteed, the most of them, just as good as new. We quote below these prices on our American movements: 18 size stem-wind, 7 jewels, from $2.00 to $2 35; 18 size stem-wind, 11 jewels, from $2.50 to $3.00; 18 size stem-wind, 15 jewels, from $3 75 to $4.50; 18 size stem-wind, 15 jewels, adjusted, from $4.50 to $5.50; 18 size stem-wind, 17 jewels, adjusted, from $5.50 to $14.00; 18 size, key-wind, 7 jewels, @ $1.25; 18 size key-wind, 11 jewels, @ $1.50; 18 size key-wind, 15 jewels, @ $1.65; 18 size key-wind, 15 jewels, adjusted, @ $1.85. Send for price-list on cases and all other goods. All goods sent C. O. D. only. We pay return charges. If any of the goods should not suit, you may return them, and we will send you ckeck for same by return mail. References: First National Bank, Bank of Commerce, Chicago. When ordering less than $5.00 worth, please send money in advance. Old gold and silver taken in exchange, or we will buy same for cash. Joe Brown Co., 96 E. Van Buren Street, Chicago, Ill.

**The Omaha Watch Repairing, Engraving and Optical Institute** does not have to enter into prize competition to work up a reputation. The success of our graduates who come into competition with jewelers and students from other schools, gives us a reputation which we prize more highly. When students are far enough advanced to do good watch repairing they may make watches or chronometers from raw materials, and learn a great deal by so doing. We have seen many students that made a watch in schools under instructions who could not turn in a new cylinder or fit a Breguet spring properly to a Swiss watch if it were to save their lives. In our opinion, when the student's time is limited, the most important thing to do is to locate the defects in timepieces and repair the same properly. Hence our students' success. It is folly to do work in any school not required in a store unless the students have time and money to perfect themselves in all branches. Dr. Tarbox and Gordon.

## BUSINESS NOTICES.

HAVE you an old English watch case you want changed into American stem-wind? If so, send it to me, and I will guarantee satisfaction. G. F. Wadsworth, Silversmiths' Building, Chicago, Ill.

You can always have from us an immediate

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**Incorporating the American Horological Institute.**

This is a School for the thorough teaching of **Watchmaking** and **Engraving.**

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**CHAS. A. STAHL, Jr.,**
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Best and cheapest. Send for price-list and prints.




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The **OLYMPIA** is the most improved music box with tune disk. Owing to its very fine quality and finish, it is specially adapted to the jewelry trade.

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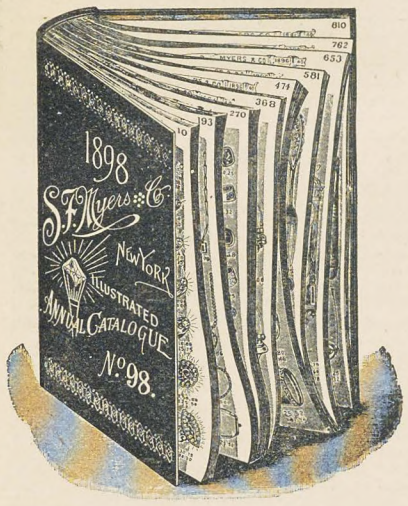
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## Index to Advertisers.


| | Page |
|---|---|
| Aikin, Lambert & Co. | 371 |
| Aikin-Lambert Jewelry Co. | 410 |
| Alford & Co., C. G. | 380*e* |
| Allen & Co., Benj. | 380*c*, 396*f* |
| American College of Ophthalmology | 396*b* |
| American Cuckoo Clock Co. | 414 |
| American Show Case and Mirror Works | 350 |
| Ascheim, Jules | 380*g* |
| Averbeck & Averbeck | 371 |
| Barnes Co., W. F. & John | 378 |
| Barnhart, Lon | 416 |
| Bausch & Lomb Optical Co. | 386 |
| Bawo & Dotter | 408 |
| Bay State Optical Co. | 392 |
| Becken, A. C. | 413 |
| Beutell Mfg. Co., The | 371 |
| Bliss & Co., John | 350 |
| Boswell Co., D. E. | 416 |
| Bowler & Burdick Co. | 417 |
| Bowman Technical School, The Ezra F. | 419 |
| Braxmar, C. G. | 402 |
| Briggs, Herman G., and Dodd, Lewis H. | 415 |
| Bryant & Co., M. B. | 402 |
| Buckenham, A. | 419 |
| Buffalo Ophthalmometer Co., The | 384 |
| Bulova, J. | 417 |
| Canadian Horological Institute | 353 |
| Chicago Ophthalmic College | 388 |
| Chicago Watch Repair Co., | 378 |
| Clark & Coombs | 378 |
| Clark & Son, A. N. | 408 |
| Clow Bros. | 349 |
| Codding & Heilborn Co. | 350 |
| Collins & Fletcher | 417 |
| Columbia Phonograph Co. | 371 |
| Conley Camera Co. | 396 |
| Cross & Beguelin | 381 |
| Crossman & Co., Chas. S. | 419 |
| Cuendet, E. L. | 419 |
| Culman, C. | 417 |
| D'Arcy, F. P. | 348 |
| Deimel Co., The Eugene | 373 |
| Donnelly, J. J. | 417 |
| Dorst & Co. | 380*g* |
| Duncan & Co. | 406 |
| Eaton & Glover | 378 |
| Eisenstadt Manufacturing Company | 381 |
| Elgin National Watch Co. | Inside front cover |
| Elm City Chemical Laboratory | 378 |
| Elmore Co., The | 417 |
| Faneuil Watch Tool Co. | 352 |
| Fay, W. G. | 396*e* |
| Ferguson, L. L. | 396*b* |
| Fleishman Company, M. S. | 402 |
| Floersheim, Kunstadter & Co., J. | 380*e* |
| Foster, Theodore W. | 341 |
| Fox & Stendicke | 417 |
| Fuller & Son, Geo. H. | 402 |
| Geneva Optical Co., Chicago | 382 |
| Geneva Optical Co., Geneva, N. Y. | 390 |
| Globe Optical Co. | 388 |
| Gnichtel, Edward E. | 417 |
| Goldsmith & Co., Ingomar | 352 |
| Goldsmith Bros. | 344, 345 |
| Goldstein Engraving Co., The | 349 |
| Gordon & Morrison | 414 |
| Gottlieb, A. | 420 |
| Green Bros. | 349 |
| Green & Co., Max R. | 402 |
| Hagstoz Co., Limited, T. B. | 417 |
| Hamilton & Hamilton, Jr. | 348 |
| Hamilton Watch Co | 380*a* |
| Hamlin, W. P. | 380*g* |
| Hardinge Bros. | 349 |
| Hardy & Co., F. A. | 394 |
| Harris & Harrington | 397 |
| Hausburg, E. O. | 414 |
| Havill, J. H. | 420 |
| Heard Optical Co., The T. M. | 396*b* |
| Heimberger & Lind, | 377 |
| Heinrich, H. H. | 417 |
| Heintz Bros. | 406 |
| Hight & Fairfield | 408 |
| Hobbs Bros. | 417 |
| Houghton, J. | 417 |
| Huston, Wm. E. | 396*e* |
| Illinois Watch Co | 367 |
| Jacobson & Co., F. H. | 414 |
| Jenkins, S. N. | 414 |
| Johnson, F. Tracy | 349 |
| Johnston Optical Co. | 388 |
| Joliet Electrical Mfg. Co. | 417 |
| Jones & Son, J. | 417 |
| Juergens & Andersen Co. | 365 |
| Kaufman & Co., Louis | 373 |
| Keller & Co, L. H. | 342 |
| Ketcham & McDougall | 410 |
| Keystone Poultry Farm | 414 |
| Keystone, The | 380*a*, 396*f* |
| Keystone Watch Case Co | 354, 355, Outside back cover. |
| King Optical Co., Julius | 396*d* |
| Kirstein's Sons Co., E. | 396, 396*b* |
| Klein School of Optics | 396*b* |
| Koenen & Bro., A. | 396*b*, 396*e* |
| Krementz & Co. | 400 |
| Lamb, B. F. | 396*b* |
| La Porte Watch School | 397 |
| Lelong & Brother, L. | 350 |
| Leopold & Co., Edwin F. | 414 |
| Mackellar, M. | 417 |
| Manasse Company, L. | 392 |
| Manor, C. E. | 416 |
| Manross, F. N. | 417 |
| Martin, S. | 352 |
| Mayer & Co., Geo. | 384 |
| McCormick Optical College | 396*b* |
| Meyer Jewelry Company | 378 |
| Meyrowitz Manufacturing Co., The | 388 |
| Monroe Co., The C. F. | 343 |
| Murine Company, The | 390 |
| Murphy, Bruce | 396*e* |
| Myers Co., S. F. | 420 |
| National Optical Company | 384 |
| New York Standard Watch Co. | 351 |
| Non-Retailing Company, The | 343 |
| Northern Illinois College of Ophthalmology and Otology | 390 |
| N Solder | 349 |
| Omaha Watch Repairing, Eng. & Opt. Inst. | 349 |
| Omega Watches | 377 |
| Ouimette, Jr., J. | 396*b* |
| Pearson, Olof | 417 |
| Pennsylvania Optical Co. | 386 |
| Peoria Horological School, The | 406 |
| Peters & Co., H. B. | 397 |
| Philadelphia College of Horology | 380*a* |
| Philadelphia Optical College | 386 |
| Phillips & Co., John | 406 |
| Photograph Novelty Co. | 414 |
| Providence Optical Co. | 396 |
| Queen City Silver Co., The | 377 |
| Queen City Watch Case Mfg. Co. | 380*g* |
| Queen & Co. | 396 |
| Revell & Co., A. H. | 375 |
| Riggs & Brother | 378 |
| Robert, Edmond E. | 373 |
| Rogers Mfg. Co., The Wm. | 375 |
| Rosenfeld, Wm. I. | 396*h* |
| Russell & Co, J. W. | 414 |
| Scherr & Co, Louis A. | 398 |
| Schirmer's Gold and Silver Ferrules | 419 |
| Schirmer's Pivot Caps | 417 |
| Schlechter | 414 |
| Scott & Co., J. T. | 380*a* |
| Sercomb & Sperry Co. | 410 |
| Simons, Bro. & Co. | 363 |
| Simmons & Pave | 373 |
| Sischo & Beard | 380*f* |
| Smith Bros. | 402 |
| South Bend College of Optics | 384 |
| Souvenir Company | 371 |
| Spencer Optical Mfg. Co. | Inside back cover |
| Sproehnle & Co. | 353 |
| Stahl, Jr., Chas. A. | 417, 419 |
| Stebbins & Wright | 419 |
| Strasburger & Co., Byron L. | 343 |
| Stumpf, George R. | 417 |
| Sussfeld, Lorsch & Co. | 400 |
| Swigart, E. & J. | 347 |
| Thomas Clock Co., Seth | 356 |
| Tidd & Co. | 350 |
| Triplett, Frank | 416 |
| U. S. Desk, File and Cabinet Co., The | 414 |
| Union Show Case Co | 410 |
| Updegrave, Wm. M. | 396*b* |
| Upham, F. A. | 396*b* |
| V. T. F. Watch Glasses | 346 |
| Wadsworth, G. F. | 417 |
| Wallace & Sons Mfg. Co., R. | 369 |
| Waltham Horological School | 406 |
| Waterbury Watch Co., The | 404 |
| W B & C Watch Glasses | 398 |
| Wells, Chester H. | 417 |
| Wilkinson & Co., C. A. | 392 |
| Williams Typewriter Co. | 397 |
| Witsenhausen, L. | 378 |
| Zimmern & Co., Henry | 408 |
| Zurbrugg & Co., T. | 416 |

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**22——COMPLETE DEPARTMENTS——22**

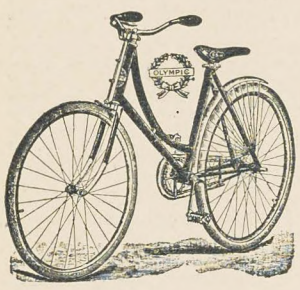
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*ESTABLISHED 1880.*



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Birmingham, Ala., March 24, 1898.

TO WHOM IT MAY CONCERN:

About eighteen months ago we had an auction sale, and it was conducted by Mr. J. H. Havill. This sale lasted four weeks, and the result was a most satisfactory surprise to us. Now we are having another auction sale (began on February 5th), and after seven weeks this second sale is a grand success.

We cannot say too much for Mr. Havill, and can assure any Jewelers who contemplate a sale they could not get a better auctioneer, a more perfect gentleman, and one who can get better results than he. To be plain, we would not employ any other auctioneer than him, and wish every Jeweler felt as we do.

Respectfully, ROSENSTIHL BROS.

## DON'T BUY A TRIAL CASE UNTIL YOU SEE

THE

# AUDEMAIR

THE ACME OF PERFECTION.

We can give you many pointers which make this case peculiar to itself.

Lens Quality, Dioptric and Inch System, Celluloid Indexes, Aluminum Alloy Rims that will not Rust or Tarnish, } are some of the Features

## COME AND SEE HOW SPECTACLES AND EYE-GLASSES ARE MADE AND LENSES ARE GROUND.

THIS INVITATION IS EXTENDED TO THE TRADE.

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THE RECOGNIZED OPTICAL SCHOOL FOR BUSINESS MEN

Our Course is Worth

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Our Thorough Practical Demonstration of all Visual Defects Correctible by Lenses will Enable You to Increase Your Business

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### OUR PRIDE.

Work returned in 24 hours. Competent Staff, Complete Stock of Cylinders, Sphero-Cylinders and Frames, make this possible. Quality and Workmanship Combined with Low Price.

## Improved Gold Filled Spectacles and Eye-Glasses.

Made in 3 Grades:

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Gold Filled
10 K. Solid Gold } End Pieces.

Made in Frameless, also with Cable Coil Temples.

HONEST QUALITY. HONEST PRICES.

## Our Interchangeable Lenses

ARE MADE FROM PURE WHITE STOCK.

Accurately Ground,
Carefully Polished,
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Free from imperfections.

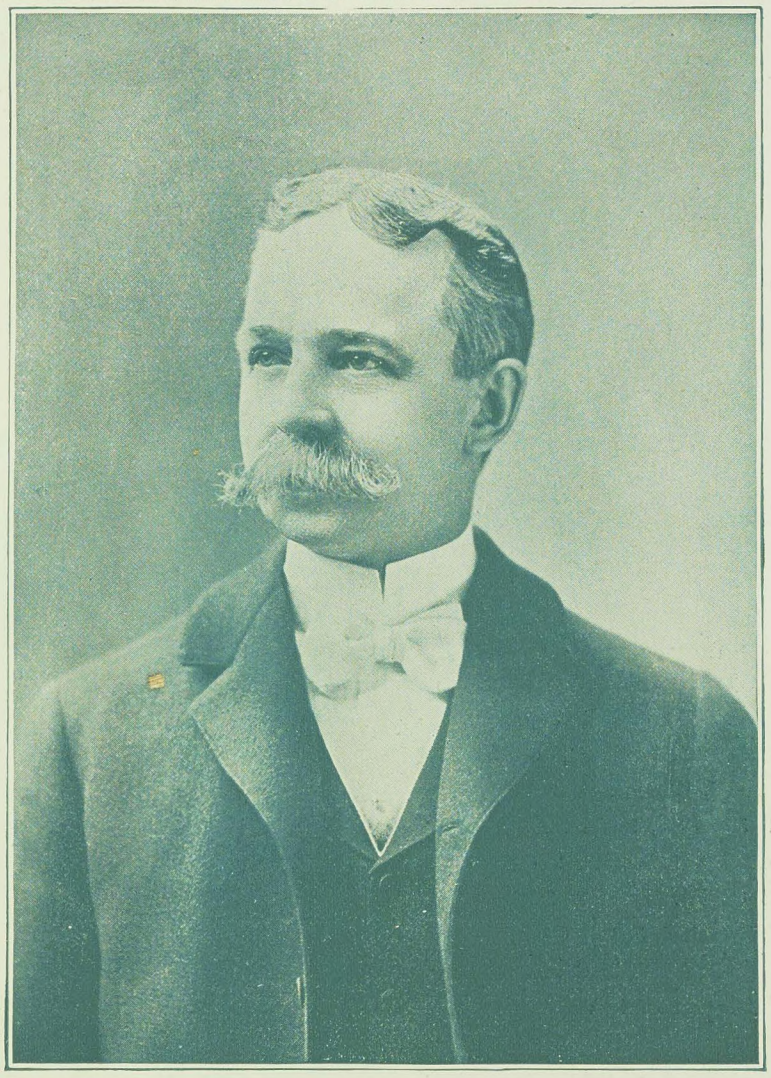
Would be pleased to have close buyers communicate with us.

## Solid Gold Spectacles AND Eye-Glasses.

The Swell End, the kind that do not break at joints or nose pieces.
Made by Patented Processes.
Improved Skeleton Strap reduces breakage to a minimum.

NEW RIDING BOW with Solid Temple and Bevel Joint is a leader.

QUALITY GUARANTEED AND PRICES THE LOWEST.



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## FOCUSING HANDLE OPERA-GLASSES.

BIG SUCCESS.

From $7.50 to $18.00.

We control the entire output of two large factories in Paris, and would be pleased to figure on your IMPORT ORDER.
NEW DESIGNS NOW READY.
Send for Price-List.

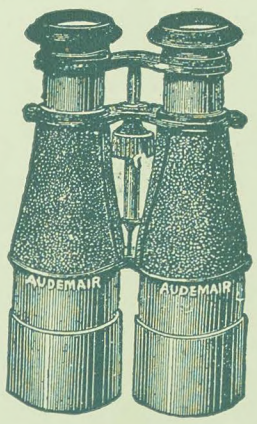
## Spectacle and Eye-Glass Case Department.

We make every grade and style.
Special styles to order.
Send on your samples and let us figure on them.

## Our Three Winners

are the light-weight cases made of tempered steel and leather-covered.

DURABILITY.
NEATNESS.




## WE ARE PREPARED TO MEET THE GREAT DEMAND FOR FIELD GLASSES.

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Most Powerful Long-Distance Glass Known.
Full Achromatic Lenses.

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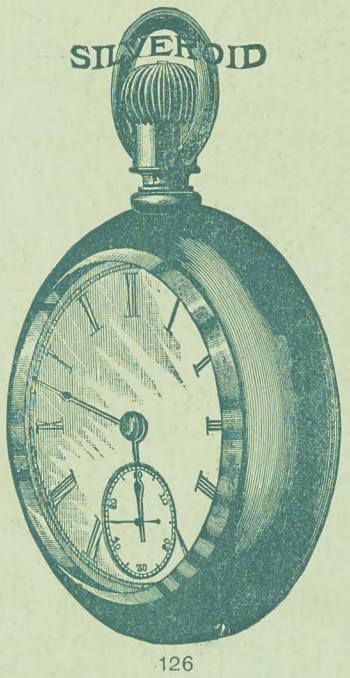
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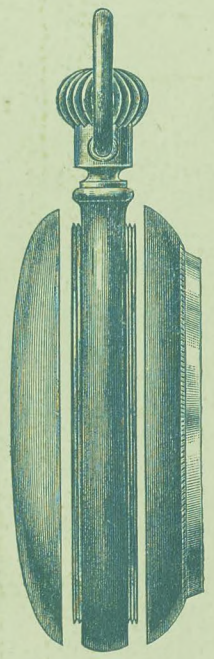
# New 3-Ounce
# Screw Silveroid

with Screw Back and Bezel




126
PRICE, $2.00
PRICE ACCORDING TO KEYSTONE KEY

The climax of economy in watch case manufacture is represented in this new screw Silveroid case. It seems incredible that a handsome, serviceable, lifetime case, of a brilliant, lasting silver color, could be produced at the price stated above, and such a manufacturing feat is really possible only with a plant so perfect as ours. The screw feature gives the case the dust and dampproof qualification so desirable for the toilers who use only the lowest-priced watches.



This case is perfect in construction—as perfect as a gold case—while the more resisting material makes it stronger and more durable than cases in the precious metals. It is just the thing for the many who have to make personal pride subservient to serviceability—and their number is legion. In conjunction with good, cheap movements this new Silveroid furnishes the greatest salesmaking opportunity of the season. Samples can be had from any Jobber.


## Keystone Watch Case Company

19th & Brown Sts., Philadelphia, Pa.